TRANSCRIPT OF RECO

SUPREME COURT OF THE UNITED STA

OCTOBER TERM, 1894.

No. 830.

HENRY H. EBY, APPELLANT,

vs.

SOLOMON L. KING, HUGH M. HAMILTON, AND JO H. GILMAN.

APPEAL FROM THE CIRCUIT COURT OF THE UNITED STATES FOR THE NORTHERN DISTRICT OF ILLINOIS.

FILED OCTOBER 24, 1894.

(14,914.)

LAW ASSOCIATION PHILADELPHIA

(14,914.)

SUPREME COURT OF THE UNITED STATES.

OCTOBER TERM, 1894.

No. 336.

HENRY H. EBY, APPELLANT.

vs.

SOLOMON E. KING, HUGH M. HAMILTON, AND JOHN H GILMAN.

APPEAL FROM THE CIRCUIT COURT OF THE UNITED STATES FOR THE NORTHERN DISTRICT OF ILLINOIS.

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1 Pleas in the circuit court of the United States of America for the northern district of Illinois, in the northern division thereof, held at the United States court-rooms, in the city of Chicago, in the district aforesaid, before the Hon. Walter Q. Gresham, judge of the circuit court of the United States for the seventh circuit, on Saturday, the third day of August, in the July term of said court, in the year of our Lord one thousand eight hundred and eighty-nine, and of our Independence the one hundred and fourteenth year.

WM. H. BRADLEY, *Clerk.*

HENRY H. EBY
vs.
SOLOMON E. KING, HUGH M. HAMILTON, and JOHN H. GILMAN. } In Chancery.

NORTHERN DISTRICT OF ILLINOIS, *ss:*

Be it remembered that on the tenth day of January, 1881, came the complainant, by his solicitor, and filed in the office of the clerk of the circuit court of the United States for the northern district of Illinois, at Chicago, in said district, his bond for costs and bill of complaint in said entitled cause; which said bond and bill are respectively in the words and figures following to wit:

2 *Bond for Costs.*

UNITED STATES OF AMERICA,
Northern District of Illinois, } *ss:*

Circuit Court, January Term, A. D. 1881.

HENRY H. EBY
vs.
S. E. KING, H. M. HAMILTON, and J. H. GILMAN. } In Equity.

I enter myself as security for costs in this cause and promise to pay all costs which may accrue to the opposite party in this action or to any of the officers of this court, and in default of payment by the plaintiff of any costs ordered or adjudged to be paid by him I hereby agree and stipulate that execution may issue against my property for any costs taxed against him.

Dated this 10th day of January, A. D. 1881.

RICH'D N. DYER.

(Endorsed:) Filed Jan. 10th, A. D. 1881. Wm. H. Bradley, clerk.

3 *Bill of Complaint.*

Circuit Court of the United States for the Northern District of Illinois, in the Seventh Circuit.

HENRY H. EBY, Complainant,
vs.
SOLOMON E. KING, HUGH M. HAMILTON, and JOHN H. GILMAN, Defendants. } In Equity.

To the honorable the judges of the circuit court of the United States for the northern district of Illinois, in the seventh circuit:

Henry H. Eby, of Mendota, in the county of La Salle and State of Illinois, and a citizen of the State of Illinois, brings this his bill of complaint against Solomon E. King, Hugh M. Hamilton, and John H. Gilman, of Ottawa, in the county of La Salle and State of Illinois, and citizens of the State of Illinois and copartners under the firm name and style of King, Hamilton & Co.

(2.) And thereupon your orator complains and says—

That on and prior to the fourteenth day of January, A. D. 1873, your orator was a citizen of the United States and was the original and first inventor of certain new and useful improvements in cob-carriers for corn-shellers, not in public use or on sale for more than two years prior to the application of your orator for the hereinafter-

4 mentioned letters patent, and that, being such original and first inventor, your orator before said fourteenth day of January, A. D. 1873, made application, in due form of law, to the Commissioner of Patents of the United States for letters patent for his said invention, and duly swore to the specifications thereof; whereupon such proceedings were had that on said fourteenth day of January, A. D. 1873, letters patent of the United States numbered 134,790 were granted to your orator therefor in conformity with the requirements of the statute in such cases made and provided, and that the said letters patent in their terms granted to your orator and to his heirs and assigns, for the term of seventeen years from said last-mentioned day, the full and exclusive right and liberty of making, using, and vending to others to be used the invention therein described and claimed, referring to the specification for the particulars thereof, and your orator brings here into court a duly authenticated copy of said letters patent and prays that the same may be taken as part of this bill.

And your orator further shows that afterwards the said letters were for due cause surrendered to the Commissioner of Patents in due form of law, and such proceedings were had that said Commissioner did on the twenty-first day of August, A. D. 1877, issue to your orator new letters patent of the United States for the same invention, in conformity with the requirements of the statute in such cases made and provided, being reissue number 7851, and that said reissued letters patent numbered 7851 in their terms granted to

your orator, for the term of seventeen years from said fourteenth day of January, A. D. 1873, the exclusive right to make, use, and vend the invention therein described and claimed, referring to the specifications for the particulars thereof, and your orator
5 brings here into court a duly authenticated copy of said reissued letters patent and prays that the same may be taken as a part of this bill.

And your orator further shows that many persons in the United States have recognized the validity of said reissue No. 7851 and have conducted their manufactories under license from your orator, notably the Sandwich Manufacturing Company of Sandwich, Illinois, the Marseilles Manufacturing Company of Marseilles, Illinois, the Joliet Manufacturing Company of Joliet, Illinois, and the Whitman Agricultural Company, of St. Louis, Missouri.

And your orator further shows that said invention has hitherto been in the exclusive possession of your orator and is of great profit to your orator, yet that the said defendants, well knowing the premises and the rights and privileges so as aforesaid secured to your orator by the said reissued letters patent, but contriving to injure your orator and to deprive him of the profits, benefits, and advantages which might and otherwise would have accrued to him from the said reissued letters patent, have been since the twenty-first day of August, A. D. 1877, and still are unlawfully, wrongfully, and without license or permission of your orator making and selling within the district aforesaid cob-carriers for corn-shellers and corn-shellers having cob-carriers attached thereto constructed according to and containing the invention patented by the said reissued letters patent in violation of the aforesaid rights and privileges of your orator, but how many of said cob-carriers the said defendants have made or sold or are now making or selling your orator is ignorant and cannot set forth, but he avers that the said defendants have derived and received and are still deriving and receiving from
6 such manufacture or sale great gains and profits, but to what amount your orator is ignorant and cannot set forth, and he prays that the defendants may be required to make a disclosure of all such gains and profits.

And your orator further prays that the said defendants may be compelled by a decree of this court to account for and pay over to your orator all such gains and profits as have accrued to or been received by them or either of them, and all such gains and profits as he may be entitled to by reason of the aforesaid manufacture or sale of said cob-carriers, and all such gains and profits as your orator would have received but for the said unlawful acts of the said defendants, and the damage which your orator has sustained by said unlawful acts of the said defendants.

And may it please your honors, the premises considered, to grant unto your orator the writ of injunction, issuing out of and under the seal of this honorable court or issued by one of your honors, according to the statute in such cases made and provided, perpetually enjoining and restraining the said defendants, their clerks, attorneys, agents, servants, and workmen, from directly or indirectly

making or selling any cob-carriers containing or employing the invention described and claimed in said reissued letters patent numbered 7851 or set forth in either of the claims thereof, and that your orator may have such other and further relief as the nature of the case may require and to your honors may seem meet.

To the end, therefore, that the said Solomon E. King, Hugh M. Hamilton, and John H. Gilman, defendants, may, if they can, show why your orator should not have the relief hereby prayed,
7 and may, upon their corporal oaths or upon the corporal oath of one of them, according to the best and utmost of their knowledge, remembrance, information, and belief, full, true, direct, and perfect answer make to such of the several interrogatories hereinafter numbered and set forth as by the note hereunder written they are required to answer—that is to say:

1. Whether the said defendants or any of them are or have been manufacturing or selling cob-carriers for corn-shellers containing the invention described and claimed in said reissued letters patent No. 7851 or set forth in either claim thereof.

2. How long have said defend-nts been manufacturing or selling such cob-carriers, and where and how many of such machines the said defendants have manufactured or sold?

May it please your honors to grant unto your orator a writ or writs of subpœna of the United States of America, issuing out of and under the seal of this honorable court, directed to the said Solomon E. King, Hugh M. Hamilton, and John H. Gilman, defendants, comman-ing them and each of them, on a day certain therein to be named and under a certain penalty, to be and appear in this honorable court, then and there to answer all and singular the premises, and to stand to, perform, and abide such further order, direction, and decree as may be made against them.

And your orator, as in duty bound, will ever pray, &c.

HENRY H. EBY.

RICH'D N. DYER,
Solicitor for Complainant.

UNITED STATES OF AMERICA, }
Northern District of Illinois, County of Cook, } ss:

8 Henry H. Eby, being first duly sworn, upon oath says that he is the complainant in the foregoing bill named; that he has read said bill and knows the contents thereof, and that the same is true of his own knowledge except as to matters therein stated on information and belief, and as to such matters he believes it to be true, and that *the* he verily believes himself to be the first and original inventor of the invention described and claimed in said reissue letters patent numbered 7851.

HENRY H. EBY.

Sworn to before me this 10th day of January, A. D. 1881.

WM. H. LOTZ,
[SEAL.] *Notary Public.*

(Endorsed:) Filed Jan. 10, 1881. W. H. Bradley, clerk.

On the same day, to wit, on the tenth day of January, 1881, there issued out of said clerk's office a writ of subpœna in said entitled cause; which said writ, together with the return of the marshal endorsed thereon, is in the words and figures following, to wit:

9 *Subpœna.*

UNITED STATES OF AMERICA, *Northern District of Illinois,* } ss:

The United States of America to S. E. King, H. M. Hamilton, and J. H. Gilman, copartners, &c., Greeting:

We command you and every of you that you appear before our judges of our circuit court of the United States of America for the northern district of Illinois, at Chicago, in said district, on the first Monday in the month of February next, to answer the bill of complaint of Henry H. Eby, this day filed in the clerk's office of said court, in said city of Chicago, then and there to receive and abide by such judgment and decree as shall then or thereafter be made, upon paid of judgment being pronounced against you by default.

To the marshal of the northern district of Illinois to execute.

Witness the Hon. Morrison R. Waite, Chief Justice of the Supreme Court of the United States of America, at Chicago [SEAL.] aforesaid, this 10th day of January, in the year of our Lord one thousand eight hundred and eighty-one, and of our Independence the 105th.

WM. H. BRADLEY, *Clerk.*

Memorandum.

The above-named defendants are notified that unless they and each of them shall enter their appearance in the clerk's office of said court, at Chicago aforesaid, on or before the day to which 10 the above writ is returnable the complainant's bill will be taken against them as confessed and a decree entered accordingly.

WM. H. BRADLEY, *Clerk.*

I have served the within writ within my district in the following manner, to wit:

Upon H. M. Hamilton, therein named, on the 2d day of February, A. D. 1881; also upon J. H. Gilman, therein named, on the 2d day of February, A. D. 1881, by personally delivering to each of them a true copy of the same on the aforesaid days.

I did not serve S. E. King, the other defendant, having been unable to find either him or that he had any residence within my district.

JES-E S. HILDRUP,
U. S. Marshal,
By L. O. GILMAN, *Deputy.*

Marshal's Fees.

2 service	$4 00
2 copies	1 00
85 miles	5 10
	$10 10

(Endorsed:) Filed Feb'y 16th, A. D. 1881. Wm. H. Bradley, clerk.

11 Afterward, to wit, on the twenty-third day of February, 1881, came the defendants, by their solicitor, and filed in said clerk's office their appearance in said entitled cause; which said appearance is in the words and figures following, to wit:

Appearance.

Circuit Court of the United States for the Northern District of Illinois, in the Seventh Circuit.

HENRY H. EBY, Complainant,
vs.
SOLOMON E. KING, HUGH M. HAMILTON, and JOHN H. GILMAN, Defendants. } In Equity.

And now come the said defendants and each of them, by Lorenzo Leland, Jr., their solicitor, and hereby enter their appearance in the above-entitled cause.

SOLOMON E. KING,
HUGH M. HAMILTON,
JOHN H. GILMAN,
By LORENZO LELAND, JR.,
Def'ts' Solicitor.

(Endorsed:) Filed Feb. 23, 1881. Wm. H. Bradley, clerk.

Afterward, to wit, on the fourth day of April, 1881, came the defendants, by their solicitor, and filed in said clerk's office their demurrer to the bill in said entitled cause; which said demurrer is in the words and figures following, to wit:

12 *Demurrer to Bill.*

Circuit Court of the United States for the Northern District of Illinois.

HENRY H. EBY
vs.
SOLOMON E. KING, HUGH M. HAMILTON, and JOHN H. GILMAN. } In Chancery.

These defendants respectively, by protestation, not confessing or acknowledging all or any of the matters and things in the said bill of complaint to be true in such manner and form as the same are

therein and thereby set forth and alleged, do demur thereto, and for cause of demurrer say that the said complainant has not by his said bill made such a case as entitles him in a court of equity to the discovery or relief prayed by his said bill against these defendants. Wherefore, and for divers other good causes of demurrer appearing in the said bill of complaint, these defendants do demur to the said bill and to all the matters and things therein contained, and humbly pray the judgment of this honorable court whether they shall be compelled to make any further or other answer to the said bill, and they pray to be hence dismissed with their reasonable costs in this behalf sustained.

I certify that in my opinion the foregoing demurrer of Solomon E. King, Hugh M. Hamilton, and John H. Gilman respect-
13 ively, defendants to the bill of complaint of Henry H. Eby, complainant, is well founded in point of law and proper to be filed in the above cause.

LORENZO LELAND, JR.,
Solicitor and of Counsel for the Defendants.

STATE OF ILLINOIS, } ss:
La Salle County, }

Hugh M. Hamilton, one of the defendants in the above-entitled suit, being duly sworn, deposes and says that he has read the foregoing demurrer to the bill of complaint in this suit, and that the same is not interposed for the purpose of delaying said suit or any proceedings therein.

HUGH M. HAMILTON.

Subscribed and sworn to before me this 2d day of April, A. D. 1881.

CHARLES S. MILLER,
County Judge, La Salle Co., Ill.

(Endorsed:) Filed Apr. 4, 1881. Wm. H. Bradley, clerk.

14 Afterward, to wit, on the twenty-fifth day of April, in the adjourned March term of said court, 1881, in the record of the proceedings thereof in said entitled cause, before Hon. Henry W. Blodgett, district judge, is the following entry, to wit:

Order.

HENRY H. EBY
vs.
SOLOMON E. KING, HUGH M. HAMILTON, and JOHN H. GILMAN. } In Chancery.

Now come the parties, by their solicitors, and the complainant confesses the demurrer of the defendants to the complainant's bill of complaint herein, and thereupon leave is given the complainant to amend his bill of complaint herein in ten days, and the defendants are ruled to answer herein by the first Monday of June next.

15 Afterward, to wit, on the sixth day of May, 1881, came the complainant, by his solicitor, and filed in said clerk's office his appearance in said entitled cause; which said appearance is in the words and figures following, to wit:

Circuit Court of the United States, Northern District of Illinois.

HENRY H. EBY *vs.* SOLOMON E. KING *et al.* } Chancery. Gen'l No., 17287; Term No., 1076.

I hereby enter my appearance for complainant in the above cause.

JESSE COX, JR.,
For Complainant.

Chicago, May 5, 1881.

To Wm. H. Bradley, Esq., clerk of said court.

(Endorsed:) Filed May 6, 1881. Wm. H. Bradley, clerk.

16 Afterward, to wit, on the sixth day of June, 1881, came the defendants, by their solicitor, and filed in said clerk's office their answer to the bill in said entitled cause; which said answer is in the words and figures following, to wit:

In the Circuit Court of the United States for the Northern District of Illinois, in the Seventh Circuit.

HENRY H. EBY, Complainant,
vs.
SOLOMON E. KING, HUGH M. HAMILTON, & JOHN H. GILMAN, Defendants. } Equity.

The joint and several answers of Solomon E. King, Hugh M. Hamilton, and John H. Gilman, defendants, to the bill of complaint of Henry H. Eby.

These defendants, now and hereafter, at all times saving and reserving to themselves and each of them all benefit and advantage of exception which can or may be had or taken to the many errors, uncertainties, and other imperfections in said bill of complaint contained, for answer thereto, or to so much thereof as these defendants are advised it is material or necessary to make answer unto, answering, say—

That they have been informed and admit it to be true that upon application by the complainant letters patent of the United States were granted and issued to said complainant on the 14th day of January, A. D. 1873, for an alleged "improvement in cob-carriers for corn-shellers," but these defendants and each of them say they do not know and are not informed, except by said bill of complaint, whether or not said Henry H. Eby did properly make application

for said patent, and did comply with all the requirements of
17 law, and did have said patent issued to him in due form of law, and leaves complainant to make such proof as he shall be advised is material.

These defendants and each of them, further answering, say that they have been informed and admit that the complainant did surrender said letters patent to the Commissioner of Patents, and that reissued letters patent were granted and issued to said Henry H. Eby on August 21st, 1877, for an alleged "improvement in cob-carriers for corn-shellers," but these defendants and each of them say they do not know and are not informed, except by said bill of complaint, whether said complainant did comply with all the requirements of the law in obtaining said reissued letters patent, and did have said reissued letters patent issued to him in due form of law, and leaves complainant to make such proof as he shall be advised is material.

These defendants and each of them, further answering, say that the said reissued letters patent are not for the same invention as that for which the original letters patent were granted and issued to said complainant, but that they are informed and believe, and so charge the facts to be, that said reissued letters patent are for more and other matters and things than those of which said complainant was the first and original inventor, and for more than were described or included in the specification attached to said original patent granted to him or shown in the drawing attached thereto or in the model forming part of the application for said patent.

And these defendants and each of them, further answering, on information and belief deny that by virtue of any such reissued letters patent mentioned in said bill said complainant became or ever was vested with any exclusive right to make, use, and vend the
18 alleged invention patented by the said reissued letters patent.

And these defendants and each of them, further answering, say that they are informed and believe, and so charge the facts to be, that the description of the alleged invention as set forth in the specification annexed to said letters patent is incomplete and analagous, and the said specification does not show the method of making and using the said alleged patented invention in such full, clear, and exact terms as to enable any person skilled in the art or science to which it appertains to make and use the same.

And these defendants and each of them, further answering, on information and belief deny that the said alleged invention so patented is of great profit to said complainant, or has hitherto been in the exclusive possession of said complainant, or has been recognized by any persons, or that any manufactories have been conducted under license from said complainant, as stated in said bill of complaint, or that the same is of great or any utility or value.

These defendants and each of them, further answering, say on information and belief that the said invention and discovery and the same principle and combination, or substantial and material parts thereof, patented in and by said reissued letters patent was patented on the 31st day of December, A. D. 1867, by letters patent

of the United States granted and issued to Cyprian U. Crandall, who resided at Galesburg, in the State of Illinois, and prior to the supposed invention and discovery thereof by said Henry H. Eby.

19 These defendants and each of them on information and belief, further answering, say that the same invention and discovery and the same combination and principle or substantial and material parts thereof patented in and by said reissued letters patent mentioned in said bill of complaint was patented on the 8th day of August, A. D. 1871, by letters patent of the United States granted and issued to one Richard Bryan, who resided at Pen Yan, in the State of New York, and prior to the supposed invention and discovery thereof by said complainant.

These defendants and each of them on information and belief, further answering, say that the same invention and discovery and the same principle and combination patented in and by said reissued letters patent mentioned in said bill of complaint was patented on the 23rd day of September, A. D. 1861, by letters patent granted and issued to Henry Brinsmead, of Ipswich, in the county of Suffolk, in England, machinist, the specification in pursuance of said last-mentioned letters patent being filed by said Henry Brinsmead in the Great Seal patent office on the 22nd day of March, A. D. 1862, and then and there duly enrolled, all prior to the supposed invention and discovery thereof by said complainant.

These defendants and each of them, further answering, say on information and belief that the said invention and discovery and the same principle and combination or substantial and material parts thereof patented in and by said reissued letters patent mentioned in said bill of complaint were set forth and described in a printed publication—that is to say, in the provisional specifi-

20 cation of Thornton's improved straw-elevator left by George Thornton at the office of the Commissioner of Patents with his petition on the 25th day of January, 1868, printed by George E. Eyre and William Spottiswoode, printers to the Queen's most excellent majesty, published at the Great Seal patent office, 25 South Hampton buildings, Holborn, England, a publication published, issued, and made free to the public prior to the said supposed invention and discovery by Henry H Eby, the patentee aforesaid.

And these defendants and each of them, further answering, say on information and belief that the same invention and discovery and the same principle and combination or substantial and material parts thereof patented in and by said reissued letters patent were patented on the 12th day of August, A. D. 1862, by letters patent of the United States issued and granted to one A. B. Nimbs (No. 36193), who resided at ——, and prior to the supposed invention and discovery thereof by said complainant.

And these defendants and each of them, further answering, severally deny that they or either of them ever have contrived or are contriving to injure said complainant or wrongfully to deprive him of any profits, benefits, or advantages whatsoever, and deny that they or either of them have at any time heretofore made or sold or

are now making or selling any cob-carriers for corn-shellers or corn-shellers with cob-carriers attached thereto constructed according to or containing the invention patented by said reissued letters patent, and severally deny that they or either of them have ever infringed or do now infringe upon the rights and privileges alleged in
21 said bill of complaint to be secured to the complainant by said reissued letters patent or set forth in either claim thereof.

And these defendants and each of them, further answering, severally deny that the said complainant is entitled to the relief or any part thereof in the said complaint demanded, and these defendants pray the same advantage of their aforesaid answer as if they had pleaded or demurred to the said bill of complaint.

And these defendants pray to be dismissed with their reasonable costs and charges in this behalf most wrongfully sustained.

SOLOMON E. KING,
HUGH M. HAMILTON,
JOHN H. GILMAN,
Defendants.

LORENZO LELAND, JR.,
Solicitor & of Counsel for Defendants.

UNITED STATES OF AMERICA, }
Northern District of Illinois, County of La Salle, } ss:

Hugh M. Hamilton, being duly sworn, does depose and say that he is one of the defendants in this cause; that he has read the foregoing answer and knows the contents thereof, and that the same is true of his own knowledge except as to the matters therein stated on information and belief, and as to those matters he verily believes it to be true.

HUGH M. HAMILTON.

Subscribed and sworn to before me this 4 day of June, A. D. 1881.
J. U. S. MILLER,
Co. Judge of said La Salle County.

(Endorsed:) Filed June 6, 1881. Wm. H. Bradley, clerk.

22 Afterward, to wit, on the second day of July, 1881, came the complainant, by his solicitor, and filed in said clerk's office his replication to the answer of the defendants in said entitled cause; which said replication is in the words and figures following, to wit:

Replication.

NORTHERN DISTRICT OF ILLINOIS, } ss:
United States of America, }

In the Circuit Court of the United States for the Northern District of Illinois, of the —— Term, A. D. 187-. In Chancery.

The replication of Henry H. Eby, complainant, to the joint and several answer of Solomon E. King, Hugh M. Hamilton, and John H. Gilman.

This repliant, saving and reserving to himself all and all manner of advantage of exception which may be had and taken to the manifold errors, uncertainties, and insufficiencies of the answer of the said defendant-, for replication thereunto saith that he does and will aver, maintain, and prove said bill to be true, certain, and sufficient in the law to be answered unto by the said defendants, and that the answer of the said defendants is very uncertain, evasive, and insufficient in the law to be replied unto by this repliant; without this, that any other matter or thing in the said answer contained material or effectual in the law to be replied unto and not herein and hereby well and sufficiently replied unto, confessed or avoided, traversed or denied, is true; all which matters and things this repliant is ready to aver, maintain, and prove as this honorable court shall direct, and humbly prays as in and by his said bill he has already prayed.

JESSE COX, JR.,
Solicitor for Complainant.

(Endorsed:) Filed this 2nd day of July, 1881. Wm. H. Bradley, clerk.

23 Afterward, to wit, on the fourth day of October, in the adjourned October term of said court, 1881, in the record of the proceedings thereof in said entitled cause, before Hon. Henry W. Blodgett, district judge, is the following entry, to wit:

Order.

HENRY H. EBY } In Chancery.
v.
S. E. KING *et al.* }

On motion of complainant's solicitor, time for taking proofs is extended thirty days.

24 Afterward, to wit, on the sixteenth day of April, in the adjourned March term of said court, 1884, in the record of the proceedings thereof in said entitled cause, before Hon. Henry W. Blodgett, district judge, is the following entry, to wit:

Order.

HENRY H. EBY
vs.
S. E. KING *et al.* } In Chancery.

On motion of Mr. Cox, it is ordered that J. A. Lamberton, of Mendota, Illinois, be, and he is hereby, appointed a special examiner under the amended sixty-seventh rule in equity to take testimony herein at that place.

25 Afterward, to wit, on the thirtieth day of September, 1884, came the defendants, by their solicitors, and filed in said clerk's office their amendment to answer in said entitled cause; which said amendment to answer is in the words and figures following, to wit:

Amendment to Answer.

Northern District of Illinois, Circuit Court of the United States, ss, 1884.

HENRY H. EBY
vs.
SOLOMON E. KING, HUGH M. HAMILTON, & JOHN H. GILMAN. } In Equity.

It is hereby stipulated and agreed by and between the above-named parties that the answer of said defendants in said cause may be amended as of the date of the filing of said answer, as follows: Insert the following next after the first paragraph in said answer: "And these defendants, further answering, on information and belief deny that the complainant was the original inventor of the improvements or of any material or substantial part thereof described and claimed in said letters patent.

"And they further aver on like information and belief that the alleged improvements described and claimed in said letters patent do not exhibit or contain any patentable novelty; but that such alleged improvements were well known to the public and in the art to which such improvements pertain long prior to the supposed and alleged invention thereof by complainant."

26 And after the third (3) paragraph in said answer insert the following:

"And these defendants, further answering on information and belief, aver that the alleged improvements claimed by complainant in said reissued letters patent are other and different than and from the alleged improvements claimed in said original patent, and are & constitute another and different alleged invention, and that all of the claims in said reissued letters patent have been intentionally widened and broadened, and thereby complainant has attempted to embrace therein and secure thereby more and different alleged inven-

tions than was embraced or contained in the claims of said original patent, and that said reissued letters patent therefore are and have been issued without authority of law and are invalid and void.

And these defendants, further answering, say that said original letters patent were granted and issued on Jan'y 14, 1873, and that the application by complainant for said reissued letters patent was not made or filed in said Patent Office of the United States until March 20, 1877, and these defendants aver on information and belief that said complainant, by his laches in making such application for said reissued letters patent and from the length of time intervening between the issue of said original letters patent and the said application for said reissued letters patent, lost all right he may have otherwise had to obtain such reissue, and that the said Commissioner of Patents, by reason of the aforesaid laches and lapse of time and by reason of said broadening of said claims in
27 said reissued letters patent, had no jurisdiction to receive or entertain said application for said reissue, and had no authority in law to grant or issue said reissued letters patent, and that the latter are therefore invalid & void."

JESSE COX, JR.,
Sol'r for Complainants.
LORENZO LELAND,
Sol'r for Defendants.

(Endorsed:) Filed Sept. 30, 1884. Wm. H. Bradley, clerk.

Afterward, to wit, on the thirty-first day of October, 1888, came the defendants, by their solicitors, and filed in said clerk's office their amendment to answer in said entitled cause; which said amendment to answer is in the words and figures following, to wit:

28 *Amendment to Answer.*

Circuit Court of the United States, Northern District of Illinois, *ss*, 1887.

HENRY H. EBY
vs.
SOLOMON E. KING, HUGH M. HAMILTON, *et al.* } In Equity.

It is hereby stipulated by & between the above-named parties that the answer in said cause may be amended by the insertion of the following next after amendment filed Sept. 30, 1884, to wit:

"And defendants deny that said original letters patent were surrendered for due cause, in due form of law, to said Commissioner of Patents, as in said bill of complaint alleged, and they further deny that said Commissioner issued or granted said reissued letters patent in conformity with the requirements of the statute in such case made and provided.

But on the contrary they aver that complainant's said original patent was at no time inoperative or invalid by reason of a defective or insufficient specification or by reason of complainant, by inadvertance, accident, or mistake, having claimed in his said original

patent as his own invention or discovery more than he had a right to claim as new.

JESSE COX,
Counsel for Complainant.
JOHN G. MANAHAN,
Of Counsel for Defendant-.

(Endorsed:) Filed Oct. 31, 1888. Wm. H. Bradley, clerk.

29 Afterward, to wit, on the twentieth day of June, in the adjourned May term of said court, 1889, in the record of the proceedings thereof in said entitled cause, before Hon. Walter Q. Gresham, circuit judge, is the following entry, to wit:

Order.

HENRY H. EBY
vs.
SOLOMON E. KING *et al.* } In Chancery.

Now come the parties, by their solicitors, and this cause, being set for hearing this day, now comes on to be heard upon pleadings and proofs, and after hearing the arguments of counsel the court takes the same under advisement.

Leave is hereby given to the parties to furnish briefs.

30 Afterward, to wit, on the eighteenth day of July, 1889, there was filed in said clerk's office a stipulation in said entitled cause; which said stipulation is in the words and figures following, to wit:

Stipulation.

In the Circuit Court of the United States for the Northern District of Illinois.

HENRY H. EBY
vs.
SOLOMON E. KING *et al.* } In Chancery.

It is hereby stipulated between counsel for the parties in the above entitled cause and admitted that the original model lodged in the Patent Office of the United States accompanying the application of Henry H. Eby for letters patent of the United States, dated January 14, 1873, numbered 134,790, for an improvement in cob-carriers for corn-shellers, was destroyed by fire in said Patent Office on September 24th, 1877, and it is agreed that this stipulation may be used as evidence thereof on the final hearing of the above-entitled cause.

Chicago, October —, 1885.

JESSE COX,
Solicitor for Complainant.
LORENZO LELAND,
Solicitor for Defendants.

(Endorsed:) Filed July 18, 1889. Wm. H. Bradley, clerk.

31 Afterward, to wit, on the third day of August, 1889, there was filed in said clerk's office the opinion of Judge Gresham in said entitled cause; which said opinion is in the words and figures following, to wit:

Opinion.

Circuit Court of the United States, Northern District of Illinois.

HENRY H. EBY
vs.
S. E. KING *et al.*

AUGUST 3, 1889.

GRESHAM, *J.*:

The complainant is not a pioneer in the art. He was not the inventor broadly of a swinging adjustable carrier, as such carriers were in prior use, and he is therefore limited to his specific claim as a means of accomplishing the described result.

The defendants were at liberty to accomplish the same result by other and different means, which they did.

The original patent described bolts secured in the framework, with the upper ends turned over the disk block. These bolts were indispensable as a means of holding the block securely in position while the machine was in use, and in order to rotate or move the block laterally it was necessary to relax or release these bolts.

32 In the reissue the complainant introduces a cross-plate under the block as a support, the plate being sunken in a cross-piece of the main frame, the axis of the block passing through this plate and causing the block to be held in position so that the carrier may be changed in direction without stopping the operation of the carrying belt or the machine. Old hook-bolts are thus rendered almost, if not entirely, unnecessary.

This and other new matter which I will not stop to describe are found in the reissue.

It is plain from the evidence in the record that the complainant thought his original patent too narrow and obtained his reissue with broadened claims, hoping thereby to cover existing machines. It is an after-thought that the complainant deemed it necessary to obtain a reissue for the purpose of limiting his patent. He was not able to obtain royalties or sell licenses, because his original patent was too narrow to embrace existing machines.

I hold—

1. That the defendants' device infringes neither the original nor the reissued patent.

2. That the application for the reissue with broadened claims was made more than four years after the original patent was granted, and that the reissue is, therefore, void.

W. Q. GRESHAM.

(Endorsed:) Filed Aug. 3, 1889. Wm. H. Bradley, clerk.

33 On the same day, to wit, on the third day of August, in the July term of said court, 1889, in the record of the proceedings thereof in said entitled cause, before Hon. Walter Q. Gresham, circuit judge, is the following entry, to wit:

Decree.

HENRY H. EBY
vs.
SOLOMON E. KING *et al.* } In Chancery.

The court, having considered the matters submitted on the hearing herein, finds the issues for the defendants. It is thereupon ordered that the bill of complaint herein be dismissed for want of equity at complainant's costs, and that execution issue therefore.

Afterward, to wit, on the twenty-third day of June, 1891, came H. G. Underwood and filed in said clerk's office his appearance as solicitor for complainant in said entitled cause; which said appearance is in the words and figures following, to wit:

34 *Appearance.*

Circuit Court of the United States, Northern District of Illinois.

HENRY H. EBY
vs.
S. E. KING *et al.* } In Equity. No. 17287.

The clerk will please enter my appearance in behalf of complainant in above cause.

H. G. UNDERWOOD.

Milwaukee, Wis., June 22, 1891.

(Endorsed:) Filed June 23, 1891. Wm. H. Bradley, clerk.

On the same day, to wit, on the twenty-third day of June, 1891, came the complainant, by his solicitor, and filed in said clerk's office his prayer for appeal in said entitled cause; which said prayer for appeal is in the words and figures following, to wit:

35 *Prayer for Appeal.*

Circuit Court of the United States, Northern District of Illinois.

HENRY H. EBY
vs.
S. E. KING *et al.* } In Equity. No. 17287.

Now comes the complainant and prays an appeal in this cause to the Supreme Court of the United States, which is granted upon his filing a good and sufficient appeal bond in the sum of one thousand dollars, with sureties, to be approved by the clerk.

H. G. UNDERWOOD,
Att'y for Comp't.

(Endorsed:) Filed June 23, 1891. Wm. H. Bradley, clerk.

36 On the same day, to wit, on the twenty-third day of June in the adjourned May term of said court, 1891, in the record of the proceedings thereof in said entitled cause, before Hon. Walter Q. Gresham, circuit judge, is the following entry, to wit:

Order.

HENRY H. EBY
vs.
SOLOMON E. KING *et al.* } In Chancery.

On motion this day filed the complainant's appeal herein to the Supreme Court of the United States is granted upon complainant's filing an appeal bond in the penal sum of one thousand dollars, with surety, to be approved by the clerk of this court.

Afterward, to wit, on the twenty-fourth day of June, 1891, came Joseph G. Parkinson and filed in said clerk's office his appearance as solicitor for complainant in said entitled cause; which said appearance is in the words and figures following, to wit:

37 *Appearance.*

Circuit Court of the United States, Northern District of Illinois.

HENRY H. EBY
vs.
S. E. KING *et al.* } In Equity. No. 17287.

The clerk will please enter my appearance in behalf of complainant in above cause.

JOSEPH G. PARKINSON.

(Endorsed:) Filed June 24, 1891. Wm. H. Bradley, clerk.

38 Afterward, to wit, on the twenty-ninth day of June, 1891, there was filed in said clerk's — an appeal bond in said entitled cause; which said appeal bond is in the words and figures following, to wit:

Appeal Bond.

In the United States Circuit Court, Northern District of Illinois.

HENRY H. EBY
vs.
S. E. KING *et al.* } In Equity. No. 17287.

Know all men by these presents that we, Henry H. Eby, of Mendota, La Salle county, Illinois, and Sylvester R. Keeler, of Meriden, La Salle county, Illinois, are held and firmly bound unto S. E. King, H. M. Hamilton, and John H. Gilman, the above-named defendants, in the sum of one thousand dollars, to be paid to said defendants, their executors, administrators, and assigns; to which payment, well and truly to be made, we bind ourselves and each of

us, jointly and severally, and our and each of our heirs, executors, and administrators, firmly by these presents.

Sealed with our seals. Dated this 29th day of June, 1891.

Whereas the above-named complainant has prayed and been allowed to appeal to the Supreme Court of the United States to reverse the decree rendered in the above-entitled action by the circuit court of the United States for the northern district of Illinois:

Now, therefore, the condition of this obligation is such that if the above-named defendants shall prosecute said appeal
39 to effect and answer all judgments, damages, and costs if they shall fail to make good their plea, then this obligation — be void; otherwise to remain in full force and virtue.

HENRY H. EBY. [SEAL.]
SYLVESTER R. KEELER. [SEAL.]

The above security is approved.

H. W. BLODGETT, *Judge.*

(Endorsed:) Filed June 29, 1891. Wm. H. Bradley, clerk.

40 *Testimony for Complainant.*

STATE OF ILLINOIS, } ss:
County of Cook, }

United States Circuit Court, Northern District of Illinois.

H. H. EBY
vs.
S. E. KING *et al.* } 17287, 1076. In Chancery.

Complainant's testimony.

At Chicago, Illinois, on this twenty-fifth day of October, A. D. 1881, before Peter J. Ellert, a notary public, at two o'clock in the afternoon, by agreement of all parties, the parties to the above-entitled cause, by their counsel hereinafter named, met at the office of Jesse Cox, Jr., Esq., room 25, No. 95 Fifth avenue, Chicago, Illinois, when the following proceedings were had:

ROOM 25, No. 95 5TH AVE.,
CHICAGO, *October 25th,* 1881.

Present: H. H. Eby, the complainant; Jesse Cox, Jr., Esq., solicitor for complainant; Lorenzo Leland, Esq., solicitor for defendants.

41 JAMES LUCAS, a witness on the part of the complainant, who was produced, sworn, and examined, testified as follows:

Q. 1. What is your name, age, residence, and occupation?

A. James Lucas; am 32 years old; Earlville, La Salle county, Illinois; am a farmer.

Q. 2. Do you know the defendants, King, Hamilton & Co.?

A. I know them by sight; am not personally acquainted with them.

Q. 3. How long have you known them?

A. Ten years.

Q. 4. What is their business and where is their place of business?

A. Their business is a manufacturing shop at Ottawa, La Salle county, Illinois.

Q. 5. What do they manufacture?

A. Corn-shellers. What other articles they manufacture I could not say. They used to manufacture corn ploughs, but whether they do so now I cannot say.

Q. 6. Did you ever make any purchase of the defendants, Messrs. King, Hamilton and Company?

A. Yes, sir; I bought a cob-stacker and feeder.

Q. 7. Please describe the machine you bought and which you have called the "cob-stacker."

A. The cob-stacker was in all respects like the model now shown me, marked "Complainant's Model Exhibit King, Hamilton & Co.'s Device," except that the pulley at the outer end of the trough is affixed thereto by means of two bolts and a slot in the King, Hamilton & Co. machine which I bought, enabling the operator to tighten or slacken the carrying chain, and in place of the
42 belt shown in this model there is in the machine which I bought a chain with iron cups or projections attached, running over pulleys at the opposite ends of the trough. Instead of the attachment shown in this model, whereby the legs are attached to the trough, there was in the machine which I bought 2 cast-iron sockets bolted to opposite sides of the trough, into which the legs supporting the trough fitted. The sockets were attached to the trough by a single bolt, so that the legs could be moved forward and backward to raise and lower the trough. The wheels and gearing at the bottom of the trough, and by which the motion was communicated to the chain, was in all respects the same as in the model shown, except that the cord shown here, by which power is communicated from the corn-sheller, was an iron chain. The large block shown in this model stands in the same relation to the cob-carrier as the corn-sheller stands to the cob-stacker which I bought when in operation. The arm supporting the cob-stacker, which in the model is made of wood, was in the machine which I bought made of cast iron and fitted to the corn-sheller by a dovetailed tongue-and-groove connections.

Q. 8. When did you purchase this machine? I mean the cob-stacker.

A. A year ago last August or September—that is, August or September, 1880.

Q. 9. State the circumstance of your purchase.

A. We took our sheller down there—that is, Charles Watts, my partner, and myself—and told them that we wanted a cob-stacker and feeder put on. By "down there" I mean the factory of King, Hamilton & Company, at Ottawa, Illinois. We saw the foreman and told him that we wanted a cob-stacker put onto our corn-sheller, and we left the corn-sheller there, and when we got it back
43 at night it had the cob-stacker attachment affixed to the corn-sheller, and also the cob-stacker ready to be affixed to the corn-sheller. By the cob-stacker attachment I mean a casting

attached to the corn-sheller, and in which is set the upright shaft upon which the cog wheel revolves, which meshes with the wheel at the inner end of the trough of the cob-stacker. The wood cut shown me, marked "Complainant's Wood-cut Exhibit," shows a corn-sheller and cob-stacker similar to ours above described when set up for operation, except that ours was not mounted on wheels.

Complainant here offers in evidence the model and wood cut identified by the witness and marked as aforesaid.

No cross-examination.

JAMES LUCAS.

Subscribed and sworn to before me this 25th day of October, A. D. 1881.

PETER J. ELLERT,
Notary Public.

44 HENRY H. EBY, complainant, examined on his own behalf, after first having been duly sworn testified as follows:

Q. 1. What is your name, age, residence, and occupation?

A. Henry H. Eby; 40 years; Mendota, Illinois; farmer.

Q. 2. Are you the complainant in this cause and the owner of reissued letters patent 7851, referred to in the bill of complaint in this cause, upon which suit is brought?

A. Yes, sir.

Q. 3. Have you granted a license or licenses to any party or parties to make machines having the improvements patented to you under these letters patent? If so, state to whom you have granted such licenses.

A. Yes, sir; I have. I have granted a license to the Sandwich Manufacturing Company of Sandwich, Illinois; to the Marseilles Manufacturing Company of Marseilles, Illinois; to the Whitman Agricultural Company of St. Louis; to the Joliet Manufacturing Company of Joliet, Illinois, and to H. Packer, of Rock Falls, Illinois.

Q. 4. Do any or all of these parties to whom you say you have granted licenses manufacture machines having the improvements patented to you under the reissued letters patent aforesaid, paying you royalty under the said licenses?

A. Yes; all of said parties do.

Q. 5. You may state upon how many of said machines the said parties have paid you royalty.

45 A. Upon (1,619) sixteen hundred and nineteen. I have sold two shop rights under the patent, one to the Joliet Manufacturing Company and the other to the Sandwich Manufacturing Company, each for a gross sum, and these latter companies do not report to me how many such machines they have made and sold. The number, 1,619, above mentioned does not include the machines made by the last-mentioned firms, except 638 made by the Sandwich Manufacturing Company previous to the granting of said shop rights.

Q. 6. Do you know who compose the firm of King, Hamilton & Company, manufacturers of agricultural machinery, of Ottawa, Illinois?

A. I do. S. E. King, H. M. Hamilton, and J. H. Gilman, the defendants in this case.

Cross-examination.

By LORENZO LELAND, Esq., solicitor for defendants:

X Q. 1. Did you grant any licenses or receive any royalties under the original letters patent on which these reissued letters patent are based?

A. I did not.

X Q. 2. Were any of these parties who are now manufacturing under license from you making cob-stackers similar to those they are now making and paying you for the privilege of so doing before you obtained your said reissued letters patent?

A. None but the Joliet Manufacturing Company.

X Q. 3. Did you apply to them to pay you a royalty for the privilege?

A. They asked me for the privilege before they made any, and I told them to go ahead, as it would be an advertisement for
46 my patent, and they could pay me what we would agree upon.

X Q. 4. Do you know whether there were any other parties manufacturing cob-carriers similar to the one for which you obtained a patent before you obtained a reissue of letters patent?

A. The Joliet Manufacturing Company were manufacturing a cob-stacker in most respects the same as the machine described by Mr. James Lucas as bought of King, Hamilton and Company, the running gear being the same. After I obtained my reissued letters patent they bought the shop right which I have mentioned.

The Marseilles Manufacturing Company were manufacturing a cob-carrier something like complainant's model Exhibit "Eby," except that the horizontal cog wheel was placed below the revolving block and was large enough to mesh with the cog wheel at the lower end of the carrying shaft, thus dispensing with the horizontal shaft and its two cog wheels. After I obtained my reissue they took a license from me to make said machine upon royalty.

X Q. 5. Did you apply to them to pay you royalty before you obtained your reissue?

A. I asked them whether they didn't think they ought to pay me a royalty. The answer, I believe, was, my letters patent were not broad enough, or words to that effect, to require them to pay royalty.

X Q. 6. Were there any other parties of whom you asked a royalty under your patent previous to the reissue?

A. I applied to the Sandwich Manufacturing Company.

X Q. 7. What was their answer to your application?

47 A. They said they did not think they were infringing on my patent.

X Q. 8. Have they paid you a royalty since the reissue?

A. They have paid me a royalty and obtained a shop right from me since the reissue, but none before.

X Q. 9. Did you apply to any other party previous to the reissue?

A. No. I applied to the defendants in this suit about the time of the reissue. I saw Mr. Gilman, who said, "I will see the other parties about it." They were at that time manufacturing a cob-carrier similar to the one described by Lucas. Mr. Gilman showed me a cob-carrier similar to the one described by Mr. Lucas and shown as complainant's model Exhibit "King, Hamilton & Company's Device," and told me that was the cob-carrier the firm of King, Hamilton & Company were manufacturing. I afterwards had a conversation with the defendant Hugh Hamilton on the same subject. He gave me no decisive answer at the time, but subsequently wrote me this letter.

The complainant here offers said letter in evidence, which is marked "Complainant's Letter Exhibit No. 1."

Redirect examination.

By JESSE COX, JR., Esq.:

Q. 1. Do you wish to make any explanation to your answer to X question 2? If so, you can now make it.

A. I do. I did not quite understand the question. I meant to say that none but the Joliet Manufacturing Company were making a cob-stacker like complainant's model Exhibit "King, Hamilton & Co.'s Device."

48 Complainant here offers in evidence "Complainant's Model Exhibit Eby."

(Signed) HENRY H. EBY.

Subscribed and sworn to before me this 25th day of October, A. D. 1881.

PETER J. ELLERT,
[NOTARIAL SEAL.] *Notary Public.*

Adjourned until tomorrow morning, October 26th, 1881, at half past ten a. m., same place.

PETER J. ELLERT,
[NOTARIAL SEAL.] *Notary Public.*

49 COMPLAINANT'S LETTER EXHIBIT No. 1.

Office of King, Hamilton & Co.

OTTAWA, ILL., *Aug.* 9, 1878.

Mr. Henry Eby, Mendota, Ills.

DEAR SIR: We have not replied to your letter for this reason: We don't feel it necessary to pay you, because we have a device of our own whereby we can get along without infringing on your patent. We can set our cob-stacker at three different points and not

use your swivel at all; but to avoid any further correspondence we will pay you (25c.) twenty-five cents on each machine. This is our ultimatum, provided your patent is valid.

Y'rs, KING, H. & CO.

50 ROOM 25, 95 FIFTH AVENUE,

CHICAGO, *October* 26, 1881—at one-half past ten o'clock a. m.

Parties met pursuant to adjournment.

Present: H. H. Eby, the complainant; Jesse Cox, Jr., Esq., solicitor for complainant; Lorenzo Leland, Esq., solicitor for defendants.

MELVILLE E. DAYTON, a witness produced on behalf of the complainant, was sworn, examined, and testified as follows:

Examination by JESSE COX, JR., Esq., solicitor for complainant:

Q. 1. What is your name, age, residence, and occupation?

A. My name is Melville E. Dayton; age, 45 years; residence, Chicago, Illinois; occupation, mechanical engineer and solicitor of patents.

Q. 2. What experience have you had in the matter of inventions of mechanical apparatus, and particularly of cob-carriers for corn-shellers, which would tend to qualify you to testify as an expert in this cause?

A. I received a thorough theoretical and practical training in mechanics in early life, and have through life been largely engaged in mechanical pursuits. For the last ten years I have given especial attention to the study and comparison of patents and patented devices, and for about five years past I have devoted myself exclusively to the business of soliciting patents, of consultation
51 upon patents and questions of infringement, and have many times testified as mechanical expert in patent suits. In my experience as solicitor of patents, during which time I have prepared between 4 and 500 applications for patents, I have had occasion to scrutinize the art to which the patent here in controversy relates and have seen cob-carriers in practical operation.

Complainant here offers in evidence reissue of letters patent of the United States, No. 7851, dated August 21st, 1877, issued to Henry H. Eby for an improvement in cob-carriers for corn-shellers, which is marked "Complainant's Patent Exhibit Complainant's Patent."

Q. 3. Have you examined and are you familiar with the reissued letters patent No. 7851, marked "Complainant's Patent Exhibit Complainant's Patent"?

A. I have examined and am familiar with said patent.

Q. 4. Have you examined and are you familiar with the construction and operation *with* the model of a cob-carrier exhibited by complainant and marked "Complainant's Model Exhibit Eby"? And, if yes, state whether said model is made in accordance with

the specification of the said reissued letters patent and correctly represents the invention therein described and claimed.

A. I have made the examination referred to in the question, and find said model to be made in accordance with the specification of said complainant's said reissued letters patent, and that it correctly represents the invention therein described.

52 Q. 5. Have you examined and are you familiar with the construction and operation of the model of a cob-carrier marked "Complainant's Model Exhibit King, Hamilton & Co.'s Device," and have you heard or read the testimony of James Lucas in relation to the cob-stacker, to which he testified as having been purchased by him of the defendants?

A. I have examined and am familiar with the construction of said model, and have heard the testimony of said witness.

Q. 6. Please compare complainant's model Exhibit "King, Hamilton & Co.'s Device," as the same would have to be modified to correctly represent the cob-carrier purchased by the witness Lucas of the defendants, as described in his testimony, with the improvements recited in both the claims of complainant's patent Exhibit "Complainant's Patent," and state whether or not you find the improvements therein claimed embodied substantially in a cob-carrier such as would be correctly represented by said last-mentioned model as modified by the testimony of said Lucas, and give your reasons for any opinion you may express.

A. I have made the comparison called for by the question, and find that the testimony of James Lucas as to differences between model present, marked King, Hamilton & Co.'s device, and the machine purchased by him, are not essential in reference to this comparison. I further find in said model, Exhibit "King, Hamilton & Co.'s Device," each and all of the elements of the first and second claims of complainant's patent sued on in this case—that is to say, I find in said model exhibit the elements of claim one, namely, "a movable independent cob-carrier, wherein are combined a supporting and revolving block, a carrying frame whose inner end

53 is supported upon said block and whose outer end is supported upon movable legs, and gearing applied at the inner end of the carrying frame and capable of acting continuously, whether the carrying frame is fixed in position or being swung to a new position," in all essential particulars substantially as described in said complainant's patent. I do not fail to note the fact that a different arrangement of the gear wheels is shown in said model, Exhibit "King, Hamilton & Co.'s Device," from that shown in said complainant's patent, but I do not understand that the complainant's patent is limited to the precise construction therein shown as far as relates to the first claim thereof, and moreover I regard the construction shown in said model, Exhibit "King, Hamilton & Co.'s Device," as in all respects the mechanical equivalent of the device shown in said complainant's patent so far as relates to the purposes and operations referred to in the first claim of said patent. I also find in said complainant's model Exhibit "King, Hamilton & Company's Device" the elements of the second claim of said

complainant's patent—namely, an independent movable cob-carrier, wherein are combined a carrying frame, supported at its inner end upon a revolving block, and the central vertical shaft and its connections, whereby the said carrying frame can be adjusted vertically and horizontally without stopping the operation of the endless belt, in all essential respects substantially as and for the purposes set forth in said complainant's patent, the difference in the arrangement of the gear wheels in reference to each other and with reference to the revolving block being such as do not,
54 in my judgment, in any manner affect the operation of the machine as contemplated in the second claim of said complainant's patent or carry it out from under said claim as a description of a combination of mechanical elements for the purposes stated therein.

Remarking upon the individual elements of the two claims of complainant's patent, I understand the carrying frame to be the trough in which travels the belt having transverse slats thereon. By the revolving block I understand the horizontal centrally pivoted plate from which rise arms that support the inner or lower end of the trough or carrying frame. There can be no doubt as to what is meant by the element of gearing specified in said claims or that of movable legs present in the first claim. The connections referred to in the second claim I understand mean the block, the driving gear, and the supporting arms by which the carrying frame or trough is attached to the rotating block and to which said carrying frame is pivoted, so as to be vertically movable. In complainant's patent four gear wheels are employed, while in the model Exhibit "King, Hamilton & Co.'s Device" but two are used. In said patent exhibit the horizontal bevel-driving spur-gear wheel is arranged above the revolving block, while in said model exhibit such spur is below the revolving block. While there may be some advantage in simplicity or otherwise in said model, Exhibit "King, Hamilton & Co.'s Device," as compared with that shown in complainant's patent, it is obvious to my mind that they are substantially the same structure, operating on the same principle and for
55 the same purposes.

Cross-examination.

By L. LELAND, Esq., solicitor for defendants:

X Q. 1. What do you understand the central vertical shaft and its connections to be in each of the models under examination?

A. The vertical axis upon which the block and the horizontal driving spur rotate.

X Q. 2. Does the central vertical shaft in complainant's model Exhibit "Eby" rotate and is the horizontal bevel spur wheel fastened firmly to said shaft?

A. The shaft does rotate in said model and said driving spur is fast upon the shaft.

X Q. 3. Does the shaft in complainant's model Exhibit "King,

Hamilton & Co.'s Device" rotate and is the horizontal bevel spur wheel fastened firmly to said shaft?

A. The shaft in said model does not rotate and said driving spur is not fast upon the shaft, but rotates about it. The difference between the two model exhibits in this respect is one of mere mechanical judgment, as in mechanics the two forms of construction are often interchangeable, it being a matter of no consequence whether the shaft rotates with the driving spur or the latter rotates upon the shaft.

MELVILLE E. DAYTON.

Subscribed and sworn to before me this twenty-sixth day of October, A. D. 1881.

PETER J. ELLERT,
Notary Public.

[NOTARIAL SEAL.]

56 STATE OF ILLINOIS, } ss:
County of Cook, }

United States Circuit Court, Northern District of Illinois.

I, Peter J. Ellert, a notary public, duly appointed by agreement of parties to take testimony in the cause in equity now pending in the circuit court of the United States for the northern district of Illinois, wherein Henry H. Eby is complainant and S. E. King and others are defendants, do hereby certify that pursuant to the annexed notice the foregoing depositions of James Lucas, Henry H. Eby, and Melville E. Dayton were taken by and before me, pursuant to agreement of counsel, at the office of Jesse Cox, Jr., Esq., room 25, No. 95 Fifth avenue, Chicago, Illinois, at the dates and times therein noted, said dates being October twenty-fifth and twenty-sixth, A. D. 1881, as therein appears; that said depositions were taken on the part of the complainant to be used at the hearing of said cause; that the said James Lucas, Henry H. Eby, and Melville E. Dayton before deposing were each by me respectively duly sworn to testify the truth in the cause aforesaid; that their depositions were reduced to writing by me from their respective statements, and when completed said depositions were read over to said witnesses respectively and respectively signed and sworn to by them in the presence of the counsel for the respective parties and before me; and I do further certify that I am neither attorney nor of counsel for any of the parties in said depositions or caption named and am in nowise interested in the result of said cause.

In testimony whereof I have hereunto set my hand and
57 notarial seal this twenty-sixth day of October, A. D. 1881.

PETER J. ELLERT,
Notary Public.

[NOTARIAL SEAL.]

(Endorsed:) Filed Oct. 28, 1881. Wm. H. Bradley, clerk.

58 STATE OF ILLINOIS, } ss:
County of La Salle, }

United States Circuit Court, Northern District of Illinois.

HENRY H. EBY }
vs. } In Chancery.
S. E. KING *et al.* }

At Mendota, Illinois, on the twenty-fourth day of April, A. D. 1884, before J. A. Lamberton, a special examiner, at one o'clock in the afternoon, by agreement of all parties, the parties to the above-entitled cause, by their counsel hereinafter named, met at the office of J. A. Lamberton, when the following proceedings were had:

MENDOTA, ILLS., *Apr. 24th*, 1884.

Present: H. H. Eby, the complainant; Jesse Cox, Jr., Esq., solicitor for complainant; Lorenzo Leland, Esq., solicitor for defendants.

JOHN C. MADDEN, a witness on the part of the complainant, who was produced, sworn, and examined, testified as follows:

My name is John C. Madden; fifty-three years old; reside in Mendota, La Salle Co., and by occupation proprietor of a machine shop; am a wood-worker by trade; have had a machine shop
59 26 years in Mendota. I know Henry H. Eby, the complainant. I have known him 25 years; have seen a machine similar to the model now shown me, marked "Complainant's Model Exhibit Eby." The first machine like the said model I ever seen was at my shop in the spring of 1872; it was made for Mr. Eby, on his order. The book now shown is my day book which I kept in 1872 in my business. On page 73 of this book I find the entry of charge against Henry Eby, the complainant, of the principal part of the work done at my shop for Mr. Eby on this first machine and the materials furnished for the same. The date of the entry is June 1st, 1872. This entry is in my handwriting and was made at the date of the entry.

The said book and entry is offered in evidence by the complainant, and it is agreed by the counsel for the respective parties that the examiner may make a copy of the said entries, and that the said copy may be received in evidence in place of the book itself.

The entry on page 72, under date May 31st, was also made by me at the time it bears date and is for part of the same work.

The same stipulation is made between counsel as to this entry as to the previous one.

Such copy is as follows:

MAY 31.

Henry Eby, Dr.

To 1¾ days' labor, J. G.	$8 75
" 11 lbs. shafts	88
	$9 63

60 JUNE 1ST.

Henry Eby, Dr.

To 32½ hours' labor	$13 00
" 56 screws	50
" 12 bolts	60
" 9 lbs. iron	75
" 3 hours' labor	1 20
" 4 gears	2 00
" 4 boxes	40
" tube box	25
" 2 double boxes	50
" 4 sheaves	2 10
	$21 70
From page 72	9 63
	31 33
Hooks, & so forth	1 00
	32 33

This work was done at my shop. The entry was made after the work was finished. I can't say positively how long I had this work in hand; it was some time in May, and may possibly have been in April, 1872. The pieces of iron and wood now shown me, marked "Complainant's Exhibit Parts of the First Machine," 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, and 12, were parts of the first machine made at my shop for Mr. Eby and are parts of the items for which I charged Mr. Eby above alluded to. The way I made the entries above mentioned was as follows: As the men worked upon the machine they would every day set down on a slip of paper how much work they had done and the material they had used, and I would, when the job was finished, make the entries in my book from the slips.

61 Mr. David Bunker, Geo. Jacobs, and John Sontag did the work on this machine of Eby's. I know that the machine I made for Eby was a cob-stacker.

Cross-examination waived.

JOHN C. MADDEN.

The complainant offers in evidence the pieces of iron and wood marked "Complainant's Exhibits" and numbered from one to nineteen, inclusive.

DAVID BUNKER, a witness on the part of the complainant, produced and sworn, testified as follows:

My name is David Bunker; I am 54 years old; reside at Mendota, Ills.; I am a general wood mechanic; I have been in the mechanical business ever since I was 21; I have known the complainant, Henry H. Eby, since 1867; in the spring of 1872 I was in the employ of Messrs. Donohue & Madden, the same John C. Madden who testified in this case; Mr. Madden was at that time proprietor of the machine

shop and foundry in Mendota, the name of the firm being Donohue & Madden; while in the employ of Donohue & Madden, in the spring of 1872, I did some work on a cob-stacker for the complainant, Henry H. Eby; the cob-stacker in question was similar to the model now shown me, marked "Complainant's Model Exhibit Eby;" the open upright framework at the end of the model, to which is attached the brass handle, was not, of course, in the original machine,
62 as that part, as I understand it, is intended to represent the corn-sheller.

The work on this machine dragged along for several weeks. When Mr. Eby first spoke to me about it there was snow on the ground. He told me he wanted to construct a cob-carrier for his corn-sheller to carry the cobs away from his machine instead of having to carry them in a basket. During the construction of the machine he was in the shop a number of times. The machine was made according to his ideas. I constructed the wood-work of the machine and fitted the iron-work and set up the machine; the machine was completed in the spring of 1872; there was no changes made in the operating parts of the machinery after it was taken from the shop; my recollection is that he took the machine away from the shop as soon as it was completed.

The pieces of iron and wood now shown me, which are marked "Complainant's Exhibits Parts of First Machine," numbered from one to fourteen, inclusive, are parts of the first machine which was constructed as above mentioned for the complainant Eby. The square wooden frame is the foundation of the machine upon which the working parts rested. There is an iron plate on the framework with a hole in the center, through which the tube box works; ten screw-holes through the flange of the tube box; there are screw-holes by which it is secured to the round block or turn-table; then that shaft that passes through the tube box has on one end of it a bevel-gear wheel and on the lower end of it a sheave; the power to drive the cob-stacker was communicated from the corn-sheller to the cob-stacker by means of a round belt passing round this lower sheave; the sheave was below the
63 round block and frame, and the bevel gear on the other end of the shaft was above it. The other smaller bevel-gear wheel was attached to a horizontal shaft and meshed with the gear wheel on the upper end of the upright shaft which passed through the round block. The horizontal shaft which is present is now attached to the smaller gear wheel. The horizontal shaft worked in a box attached to the round block; the said box is not present. On the end of the horizontal shaft, opposite the smaller bevel-gear wheel, there is attached one of the spur-gear wheels; that spur-gear wheel communicated motion to the endless belt of the cob-stacker by meshing into a similar spur-gear wheel attached to a shaft at the lower end of the carrier. This conveying spout or frame was attached to the round block or turn-table by means of these two iron supporting arms. The round block or turn-table was secured in position by means of two bolts passing through the square frame flush with the edge of the round block and bending over the top of the round

block. The said two bolts are not present. To change the position of the carrier it was necessary to relieve these bolts, and to tighten them again to hold the block in position; at least such was the original idea; but I do not know from my own observation whether it was necessary to do this in practice. The elevated spout was supported a little more than half of its length from the lower end by two legs, one on each side, as shown in the model. The elevating spout was provided with two endless belts, having strips of wood extending from one to the other, as shown in the model, passing over rollers at the end of the spout and propelled from the bottom
64 of the elevated spout by the gearing before described.

DAVID BUNKER.

Cross-examination waived.

WILLIAM M. EBY, a witness on the part of the complainant, produced and sworn, testified as follows:

My name is William M. Eby; 37 years old; reside in Mendota, La Salle Co., Ills.; occupation, a farmer. I am a nephew of the complainant.

The defendants' counsel objects to any testimony as to the statements made by the complainant to witness.

In the winter of 1871 & '72 the complainant came to my father's house, where I was then living, and asked for permission to take away an iron ring of from 12 to 18 inches in diameter for the purpose, as he said, of constructing a machine to carry away the cobs from his corn-sheller. At that time the complainant owned a corn-sheller and used to go around shelling corn for the farmers. I used to go with him sometimes as an assistant. On two occasions in question he said he was going to make a cob-carrier which would deliver the cobs in any direction from the corn-sheller. He said he wanted the ring as a turn-table or foundation to build the cob-stacker on. I was at the State fair at Ottawa, Ills., in the fall of 1872. Before the time of the State fair I had seen a
65 cob-stacker which, according to my recollection, was something like the model now shown me, marked "Complainant's Model Exhibit Eby." I had seen it in operation. At the time of the State fair I was making a model of Eby's cob-stacker for the Patent Office. It was not finished at the time I attended the fair. I was at said fair about the third day of said fair. I was there pretty much all day. I made a particular examination while at said fair among the machinery exhibited at said fair to see if there was any cob-stackers on exhibition that day. I did not see any cob-stacker of any kind on exhibition that day at said fair. I saw an Ottawa corn-sheller on exhibition then. I know of no other firm in Ottawa that made corn-shellers at that time, except King, Hamilton & Co. There was no cob-stacker exhibited at that time in connection with this Ottawa corn-sheller. By reason of the fact that I was making a model for the Eby cob-stacker my attention was particularly directed to looking out for cob-stackers at the said fair.

I was at the State fair at Ottawa 8 or 9 years ago—at the time when Mr. Eby exhibited his cob-stacker there for the first time. I saw there at that time the Ottawa corn-sheller—that is, the same make of sheller I saw there in 1872. There was no cob-stacker exhibited in connection with this Ottawa corn-sheller at the last-mentioned fair when I was there.

Cross-examination waived.

WILLIAM M. EBY.

66 EDWARD S. GILLETT, a witness on the part of the complainant, produced and sworn, testified as follows:

My name is Edward S. Gillett; am 34 years old; reside in Mendota, Ills.; am a farmer.

I was at the State fair at Ottawa in the fall of 1872. I was there during two days. At that time I owned a corn-sheller and operated it around among the farmers. My corn-sheller at that time was one made by King, Hamilton & Co. I made a particular examination among the threshers and corn-shellers to see what improvements had been made in corn shellers and threshers, as I was particularly interested in that kind of machinery. There was no cob stacker or carrier of any kind at that State fair that I saw. The cob-stacker made by Mr. Eby was the first one I ever saw. I saw a King-Hamilton corn-sheller exhibited at the State fair at Ottawa, Ills., in 1872, and there was no cob stacker or carrier exhibited with it.

Cross-examination waived.

EDWARD S. GILLETT.

SAMUEL MCCORMICK, a witness on the part of the complainant, produced and sworn, testified as follows:

My name is Samuel McCormick; 42 years old; reside at Mendota, Ills.; am a farmer.

I was at the State fair at Ottawa in the fall of 1872 with
67 Edward S. Gillett and looked particularly at corn shellers and threshers to see if there was any improvements in them. I saw the King & Hamilton corn-sheller there. I saw no cob stacker or carrier exhibited at said fair either in connection with a King & Hamilton sheller or otherwise.

Cross-examination waived.

SAMUEL McCORMICK.

SAMUEL SWISHER, a witness on the part of the complainant, produced and sworn, testified as follows:

My name is Samuel Swisher; 63 years old; live in Mendota township, La Salle Co., Ills.; am a blacksmith by trade; I have known Henry H. Eby 16 or 18 years; he is my son-in-law.

In the latter part of the winter or early part of the spring of 1872 the complainant told me that he had invented a cob-carrier or cob-

stacker which would deliver the cobs in any direction from the sheller; he said that it would be made so that the elevating spout could be raised, lowered, or turned sidewise in any direction without stopping the operation of the machine.

It is agreed between counsel that the defendant may have the advantage of any objection to this testimony on the ground of the same being hearsay.

68 Some time in the summer of 1872—I rather think it was the early part of the summer—I saw the complainant's cob-stacker in operation in connection with the corn-sheller; the cob-stacker in question was substantially like the model now shown me, marked the "complainant's model Eby." The complainant was using the cob-stacker himself in connection with his corn-sheller, shelling corn for Moses Eby. The cob-stacker operated successfully at that time. I was at the State fair at Ottawa, Ills., in the fall of 1872. I was interested in the subject of cob-stackers on account of the complainant's invention, and examined among machinery there to see if there was any cob-stackers on exhibition. I saw no cob-stackers there of any kind. I was there on Thursday, the third day of the fair. I think the fair broke up the next day.

Cross-examination waived.

SAMUEL SWISHER.

STATE OF ILLINOIS, } ss:
La Salle County, }

United States Circuit Court, Northern District of Illinois.

I, J. A. Lamberton, a special examiner, duly appointed by agreement of the parties to take testimony in the cause in equity, now pending in the circuit court of the United States for the northern district of Illinois, wherein Henry H. Eby is complainant and S. E. King and others are defendants, do hereby certify that, pur-
69 suant to the annexed notice, the foregoing deposition of John C. Madden, David Bunker, William M. Eby, Edward S. Gillett, Samuel McCormick, and Samuel Swisher were taken by and before me, pursuant to agreement of counsel, at my office in Mendota, Illinois, at the date and time therein noted, said date being April 24th, A. D. 1884, as therein appears; that said depositions were taken on the part of the complainant to be used at the hearing of said cause; that the said John C. Madden, David Bunker, William M. Eby, Edward S. Gillett, Samuel McCormick, and Samuel Swisher, before deposing, were each by me, respectively, sworn to testify the truth, the whole truth, and nothing but the truth in the cause aforesaid; that their depositions were reduced to writing by me from their respective statements, and when completed said depositions were read over to said witnesses, respectively, and respectively signed and sworn to by them in the presence of the counsel for the respective parties and before me, and I do further certify that I am neither attorney nor of counsel for any of the parties in

said depositions or caption named and in nowise interested in the result of said cause.

In testimony whereof I have hereunto set my hand and seal this twenty-fourth day of April, A. D. 1884.

JOHN A. LAMBERTON, [SEAL.]
Special Examiner.

It is agreed between counsel that J. A. Lamberton, special examiner, in the case of Eby *vs.* King *et al.*, can send the depositions to Jesse Cox, Jr., room 25, 95 Fifth avenue, cor. Washington St., Chicago, Illinois.

JESSE COX, JR.,
For Compl't.
LORENZO LELAND,
Sol'r for Def'ts.

(Endorsed:) Filed Jan'y 15, 1885. Wm. H. Bradley, clerk.

70 United States Circuit Court, Northern District of Illinois.

WEDNESDAY, *April* 16, *A. D.* 1884.

Present: Hon. Henry W. Blodgett, district judge.

HENRY H. EBY
vs.
S. E. KING *et al.* } In Chancery.

On motion of Mr. Cox, it is ordered that J. A. Lamberton, of Mendota, Illinois, be, and he is hereby, appointed a special examiner, under the amended sixty-seventh rule in equity, to take the testimony herein at that place.

NORTHERN DISTRICT OF ILLINOIS, *ss:*

I, William H. Bradley, clerk of the circuit court of the United States for the northern district of Illinois, do hereby certify *that* the above and foregoing to be a true and correct copy of the order entered of record in said court on the 16th day of April, A. D. 1884, in the cause wherein Henry H. Eby is complainant and S. E. King *et al.* are defendants, as the same appears from the original record thereof now remaining in my custody and control.

In testimony whereof I have hereunto set my hand and affixed the seal of said court, at my office in Chicago, in said district, this 6th day of May, A. D. 1884.

[SEAL.] WILLIAM H. BRADLEY, *Clerk.*

(Endorsed:) Filed Jan'y 15, 1885. Wm. H. Bradley, clerk.

71 UNITED STATES OF AMERICA,
Northern District of Illinois, State of Illinois, } ss:
County of Cook,

In the Circuit Court of the United States for the Northern District of Illinois. In Chancery.

HENRY H. EBY
vs.
SOLOMON E. KING, HUGH M. HAMILTON, and JOHN H. GILMAN.

At Chicago, on the third day of June, A. D. 1885, before Gideon F. Lanaghen, a notary public, at ten o'clock in the forenoon, pursuant to the annexed notice, the parties to the above-entitled cause—the complainant, by his counsel, Jesse Cox, Jr., Esq., and the defendants, by their counsel, John G. Manahan, Esq.—met at the office of Jesse Cox, Jr., Esq., room 11, No. 95 Fifth avenue, Chicago, Illinois, when the following proceedings were had:

ROOM 11, No. 95 FIFTH AVENUE, CHICAGO, ILLINOIS,
WEDNESDAY, *June 3rd*, 1885—10 o'clock a. m.

Present: Jesse Cox, Jr., Esq., counsel for complainant; John G. Manahan, Esq., counsel for defendants; H. H. Eby, Esq., complainant.

72 GEORGE GASKELL, a witness produced on behalf of the complainant, was duly sworn and testified as follows:

Q. 1. What is your name, age, residence, and occupation?

A. My name is George Gaskell; age, 55 years past; Channahon, Will county, Illinois; occupation, farmer.

Q. 2. Do you know of the defendant's firm, King, Hamilton & Company; if so, how long have you known them?

A. I have known of them ever since prior to the fall of 1872.

Q. 3. Were you ever at their place of business?

A. Yes, sir.

Q. 4. Where was it?

A. At Ottawa, Illinois.

Q. 6. Do you remember being at the place of business of King, Hamilton & Company some time during the year 1873 or 1874?

A. I do.

Q. 7. Please state what occurred when you were there on that occasion.

A. I went there to see what improvements they were making or had made on their shellers and whether they were building a cob-stacker.

Q. 8. You may state whether or not you at that time owned one of the shellers of King, Hamilton & Company's make.

A. The time I had reference to I did.

Q. 9. Please state what took place there at the time referred to.

A. I talked with them about the improvements they were making on their sheller, and also asked them if they were building cob-

stackers. Their reply was that they were not building a cob-stacker, but that they intended to soon.

73 Q. 10. Were you at the time mentioned familiar with the cob-stacker which was at that time being made by the Marseilles Manufacturing Company, substantially like the model exhibit marked "Eby"?

A. I was.

Q. 11. Was or was not that cob-stacker made by the Marseilles Manufacturing Company in the market for sale at the time you have referred to when you went to the defendants' place of business?

A. Yes. I then owned one.

Q. 12. Of whom did you buy your sheller that you refer to of the King, Hamilton & Company make?

A. Of William A. Jordan, living then in Minooka, selling agricultural machinery.

Q. 13. Did Mr. Jordan handle the King, Hamilton & Company's corn-shellers during the years 1873 and 1874?

A. I think he did. I got mine of him, anyway.

Q. 14. Did you make any inquiries of Mr. Jordan about getting a cob-stacker for your King, Hamilton & Company machine at any time?

A. My recollection is that I did prior to going to Ottawa at the time I speak of.

Q. 15. How long before?

A. It was along in the spring; not a great while before. The idea that I had was to get a cob-stacker ready for the shelling business in the summer. I owned both spring sheller and cylinder sheller at the same time. I at that time shelled corn for the farmers and also for warehouses. All my customers wanted stackers along with the sheller when I worked for them. I had an Eby cob-stacker with the spring sheller, and I wanted to get a stacker to go with

74 the machine made by King, Hamilton & Company, so I inquired of Mr. Jordan whether King, Hamilton & Company were making a cob-stacker to accompany their sheller. He said he thought not; he had not heard of their making any; and so when I visited the shop of King, Hamilton & Company, at Ottawa, at the time I mentioned I went there for the purpose of finding out for myself whether they were making a cob-stacker to accompany their machine. At the time I went to King, Hamilton & Company's place on the occasion above referred to I went through their shops and saw corn-shellers like the one I had of their make, but I did not see any cob-stackers there. I made inquiry of the firm, and they said they were not making cob-stackers of any kind. I was in their shops when they were making shellers, and also in the rooms where they had shellers completed ready to be shipped. I inquired of several persons who were employed there, and particularly of the person who seemed to be in charge of the machine shop, giving orders, and the replies I got were that the firm were then not making cob-stackers of any kind. I did not know the members of the firm personally. I cannot say that it was any of the members of the firm that told me this. I was satisfied that they were not making any

cob-stackers at that time. At the time I was at Ottawa, just referred to, I already had one of the Eby cob-stackers like the model above referred to. I bought the King, Hamilton & Company corn-sheller in the fall, and it was either the spring or early summer after that or a year from that time that I went to Ottawa and inquired as above stated. I run my King, Hamilton & Company sheller, or cylinder sheller, as it was called, for nearly three years, and during the time I had it I could not get a cob-stacker for it. I knew
75 others who were using the same sheller who were desirous of getting a cob-stacker for it, but could not do so. They were desirous of getting a cob-stacker because the Eby cob-stacker had come into the market and their customers all wanted a cob-stacker on the machine when in use.

Cross-examination waived.

GEO. GASKILL.

Subscribed and sworn to before me this third day of June, A. D. 1885.

GIDEON F. LANAGHEN,
[NOTARIAL SEAL.] *Notary Public.*

76 HENRY H. EBY, complainant, was recalled on his own behalf, and, being duly sworn, was examined in chief by JESSE COX, Jr., Esq., and testified as follows:

Q. 1. You may please state when you first conceived the idea of the invention described in the original and reissued letters patent for improvement in cob-carriers upon which suit is brought in this case, and give a history of the embodiment of your idea in the machine.

A. I first conceived the idea of this invention, as represented by the model exhibit marked "Eby," in the fall of 1871. I first conceived the idea of constructing a cob-stacker so that it could be adjusted, both vertically and horizontally, without stopping its operation.

I conceived the idea of placing the inner end of the carrier upon a turn-table and driving the belt of the carrier from the inner end by means of a central vertical shaft running up through the middle of the turn-table and driving the shaft be means of a pulley under the block, the shaft communicating motion to the inner end of the carrier by means of gear wheels. Early in the fall of 1871 or the following winter I described my idea to a young man named Garret Williamson, who is now in Leavenworth, Kansas. I also some time during the winter of 1871 and 1872 described my invention to Samuel Swisher, my father-in-law; John Swisher, my brother-in-law; also to my nephew, William M. Eby. I described it to these persons in a general way. I told them that it would consist of a revolving block, having a shaft running through it verti-
77 cally, with gear connections attached to the inner end of the carrier. In the month of April, 1872, I first commenced to build a machine containing my invention. In April, 1872, I contracted with Donahue & Madden, who then had a machine shop

in Mendota, Illinois, to build me a machine containing the invention. Donahue & Madden commenced some time during the month of April, 1872, to build a machine, and they completed the machine in the month of May, 1872, I think the latter part of the month. When the machine was first completed it was in all respects like complainant's model Exhibit "Eby," except that in place of the two spur gears, one on the inner end of the carrying frame and the other meshing therewith, there were two pulleys connected by short band. I found that these pulleys and belt did not work very well, and in about ten or fifteen days after the machine was first completed I took off the two pulleys and substituted the two spur-gear wheel-, the same as in the model Exhibit "Eby." The nineteen pieces of wood and iron marked "Complainant's Exhibits Parts of First Machine," marked one to nineteen, inclusive, respectively, are parts of said first machine made by Donohue & Madden.

Numbers one and two are the arms mounted on the circular block for supporting the inner end of the carrier. Numbers three and five are the spur gears attached, one to the inner end of the carrying frame and the other to the horizontal shaft mounted on the revolving block, which horizontal shaft is marked number ten. Number six was the central vertical shaft passing through the circular block, and also through the iron plate, which iron plate is marked number thirteen. Said iron plate was directly
78 beneath and supporting said block. An iron tube box, marked number eight, was inserted in the central portion of the circular block, and the upright shaft passed through this box. On the top of this central vertical shaft was a beveled gear wheel, marked number four, which meshed with the beveled gear wheel, marked number seven, on the inner end of the horizontal shaft. Number eleven was the pulley attached to the central vertical shaft beneath the revolving block and iron plate, around which passed the belt from the corn-sheller to drive the carrier. The frame supporting all these devices consists of five different parts, marked, respectively, numbers fifteen, sixteen, seventeen, eighteen, and nineteen. Number nine was the circular block resting upon the iron plate, number thirteen, and upon the framework. Number fourteen is one of the original pulleys, one of which was attached to the inner end of the carrying frame and the other to the outer end of the horizontal shaft. The other of these pulleys is lost. Number twelve is the pulley attached to the lower end of the vertical shaft of the corn-sheller. A belt from this pulley to the larger pulley, marked number eleven, communicated power from the sheller to the carrier. I would state that the two end pieces of the frame are not parts of the original frame as made by Donahue & Madden. The original parts were exactly like them, except that they were a little shorter and contained holes for the insertion of hook-bolts to hold the revolving block in position. After the original frame was made I made a somewhat larger circular block which necessitated longer side pieces for the frame pieces, and these longer end pieces are the ones now here. All the rest of the ex-

hibits referred to are pieces of the original machine. In the
79 latter part of May or fore part of June, 1872, this identical machine was put in practical use. I operated it on my place, near Mendota, to deliver cobs from my corn-sheller. I used it about an hour and found that it worked well, but at that time it had the pulleys on the inner end of the carrying frame and the outer end of the horizontal shaft. About ten or fifteen days after this I substituted gear wheels for these pulleys and then the machine worked perfectly. After substituting the spur wheels for the pulleys I used the carrier along in June, July, and throughout the summer and fall of 1872, whenever I had occasion to use my sheller, sometimes for two or three days at a time continuously, and it worked perfectly and gave complete satisfaction. The next cob-stackers that were made containing my invention were made by the Sandwich Manufacturing Company at Sandwich, Illinois, in April or May, 1873, under license from me. The Sandwich Manufacturing Company has continued to make them ever since under license. The Marseilles Manufacturing Company also commenced in the same spring—1873—to manufacture said machines, under license from me, and have continued to make them up to the present time. These and other companies and other firms have also made and sold large quantities of them under license from me. I should say that the original machine was set up on four legs, which are not present.

In the first original machine there were two hook-bolts on opposite sides of the revolving block, one on each side. The purpose of these hook-bolts was to keep the block from turning when the machine was in operation. I subsequently found in the use of the machine that these hook-bolts, though useful, were not abso-
80 lutely necessary to be used in practice, the weight of the carrier and the position of the legs being sufficient to keep the block from turning. This was the only object of the hook-bolts. The vertical shaft fastened to its box and through the hole in the metal plate prevented the block from slipping when the hook-bolts were released.

The central hole in the metal plate is at the present time considerably larger than it was at the time when this original machine was in use. After I ceased to use this original machine I took it apart and used this metal plate to experiment with on a straw-carrier, which was made on the same principle as the cob-stacker. The central hole in the plate was originally the same size as the box marked number eight at its extremity, remote from the flange containing screw-holes. It will be noticed that the box at this extremity is cut away and reduced in size, so that it just fitted in the central hole in the plate as the hole originally was.

Q. 2. Did you make a Patent Office model to accompany your application for a patent on your said invention? If so, when did you make it, and who, if anybody, assisted you in making it?

A. Yes; I made such a model in the month of October, 1872. My nephew, William M. Eby, assisted me to make it. The said Patent Office model was identically the same as complainant's

model Exhibit "Eby," and it was sent to the Patent Office with my application for a patent on the machine.

Q. 3. I call your attention to a metal plate in the model marked "Eby," resting on the frame and passing beneath the circular block through a hole, in which passes a box to receive the central vertical shaft. Did or did not this metal plate and box,
81 with the metal plate passing through the same, exist in the original model sent by you to the Patent Office with the application for your original letters patent?

Question and answer objected to by defendants' counsel as incompetent.

A. Yes; it did.

Q. 4. Were or were not said metal plate, box, vertical shaft, and circular block arranged in said model accompanying your original application for your original letters patent in the same manner as shown in the model Exhibit "Eby"?

Question and answer objected to by defendants' counsel as being incompetent.

A. Yes; they were.

Q. 5. Did the application for the original letters patent above referred to result in your obtaining letters patent of the United States; and, if so, what letters patent?

A. It resulted *to* my obtaining letters patent numbered 134,790, dated January 14, 1873.

Q. 6. Was the first machine made by you and completed in May, 1873, capable of acting continuously, whether the carrying frame was fixed in position or being swung to a new position, and could the carrying frame of said machine be adjusted vertically and horizontally without stopping the operation of th- endless belt?

A. Yes.

Q. 7. Was or was not the same true of the original model sent by you to the Patent Office with your application for the original letters patent?

A. Yes.

82 Question and answer objected to by defendants' counsel as being incompetent.

Q. 8. Did you at any time have an interview with the defendant Mr. Solomon E. King in regard to your cob-stacker; and, if so, when?

A. Yes; in the latter part of 1873 or the early part of 1874. I showed him my model of the cob-stacker, like the model marked "Eby," which I had with me. I requested Mr. King to examine the model, which he did, and Mr. King stated that he had never seen anything of the kind before, but said he thought it would not pay them to manufacture it in connection with their corn-shellers. He further stated that they had made and sold one or two cob-carriers, but they were stationary and not adjustable.

Q. 9. Did you see the defendant Mr. Gilman at the same time?

A. Yes, sir; I did. He stated about the same as Mr. King stated, though not in the same way.

Q. 10. Were you at the State fair at Ottawa in the fall of 1872; and, if so, did you make any examination among the agricultural implements there exhibited to see if there were any cob-stackers there exhibited, and did you find any cob-stackers there exhibited?

A. Yes; I was at the fair at Ottawa, Illinois, in the fall of 1872. I made a particular examination to se- if there were any cob-stackers there, as that was my principal business at the fair. There was no cob-stacker or cob-carrier of any kind exhibited at that time at said fair. I saw King, Hamilton & Company's exhibit at said fair, and there was no cob-stacker exhibited by them.

Q. 11. Referring to your original machine made in May,
83 1872, was there a carrying frame having *having* a gear wheel attached at its inner end to drive the endless belt of the carrier and legs on the carrier for its support made at the same time with said machine and accompanying it?

A. Yes.

Cross-examination waived.

HENRY H. EBY.

Subscribed and sworn to before me this third day of June, A. D. 1885.

[SEAL.] GIDEON F. LANAGHEN,
Notary Public.

Adjourned until tomorrow, Thursday, June 4th, 1885, at ten o'clock a. m.

GIDEON F. LANAGHEN,
Notary Public.

84 ROOM 11, No. 95 FIFTH AVENUE, CHICAGO, ILLINOIS,
THURSDAY, *June 4th*, 1885—10 o'clock a. m.

Parties met pursuant to adjournment.

Present: The same parties and Lorenzo Leland, Esq., counsel for defendants.

MELVILLE E. DAYTON, a witness recalled on behalf of the complainant, was again duly sworn and examined in chief by JESSE COX, JR., Esq., and testified as follows:

Q. 1. Have you examined and are you familiar with the certified copy of the original letters patent granted to Henry H. Eby, dated January 14th, 1873, and numbered 134,790, for an improvement in cob-carriers?

A. I have and am.

Q. 2. Calling your attention to said original letters patent, as well as to the reissue of the same, marked "Complainant's Patent Exhibit Complainant's Patent," which you have already stated that you have examined and are familiar with, I will ask you to state if you have examined and are familiar with the several patent exhibits put in evidence by the defendants in this case and respectively marked

" Defendants' Exhibit Provisional Specification of George Thornton for Improvements in Straw-elevators," " Defendants' Exhibit Cyprian U. Crandall Patent," " Defendants' Exhibit Henry Brinsmead's Patent," " Defendants' Exhibit Richard Bryan Patent," " Defendants' Exhibit A. B. Nimbs and John C. Clifford's Patent," " Defend-
85 ants' Exhibit Davenport Patent," and " Defendants' Exhibit Reading Patent," and, if you state that you have examined and are familiar with the same, please compare the devices described and claimed in said defendants' exhibits with the devices described and claimed in said original and reissued patents to Henry H. Eby and state whether or not you find the invention described and claimed in said original and reissued letters patent to Eby in said patent exhibits of the defendants, and give your reasons for any opinions you may express.

A. I have examined and am familiar with the letters patent and provisional specification referred to in the question, and have compared the devices described in the said defendants' exhibits with the description and claims of the original and reissued Eby patents. As a result of such examination and comparison I find that claims one and two of the said Eby original patent may be capable of so broad a construction as to be anticipated by some of the devices shown in said defendants' exhibits, and that the claims of the reissued patent are not anticipated by anything contained in said defendants' exhibits.

To first define and compare the constructions embraced in the question:

The Eby device is a carrier attachment for carrying away the cobs from a corn-shelling machine and consists of a belt-carrier mounted in a trough and propelled from the mechanism of the shelling machine, the said carrier being actuated by such connecting mechanism as permits the carrier to be either raised or lowered at its outer end, and also to be swung from side to side at its outer end without arresting the operation of the carrying devices. The carrier consists essentially of an endless belt trained over rollers
86 placed one at each end of the carrying trough and transversely to said trough. This was old. The problem which Mr. Eby sought to solve in constructing his device was to provide mechanism for driving this carrier-belt, capable of keeping up its carrying motion while the outer end of the carrying trough was being changed in its position, either vertically or horizontally or both. The essential features of the mechanism which he devised for this purpose are, first, a vertical rotating axis, carrying a gear wheel located below the inner end of the carrying trough, which axis is not only that of the wheel which it carries, but is also that on which the carrying trough rotates in its lateral movement; second, a horizontal axis or shaft arranged to stand always in the same plane with the vertical shaft, and also always transverse to the carrier or parallel with the axis of the rollers which carry the belt of said carrier. This horizontal shaft is provided with a gear wheel which engages with the wheel first mentioned as having a vertical axis. Third, an axis for the vertical movement of the carrier,

which is coincident with the axis of the lower or inner carrying roller. The carrier-belt is driven by rotation of the said inner or lower roller.

To point out specifically the particular devices shown in the Eby patent for these purposes he provides a suitable frame or support for the vertical shaft first mentioned, which shaft has a pulley on its lower end and is driven by a belt from the shelling machine. The shaft is vertically supported or held in place by being passed through a hole in the frame and is vertically upheld by a circular plate or turn-table, through which also the shaft passes and
87 which itself rests on said frame. A collar on the shaft above the plate sustains the shaft. Two arms rise from this circular plate and at their upper end furnish a horizontal axis for the inner end of the carrier-trough, so as to not only uphold said end of the carrier-trough at a fixed elevation above the turn-table, but permit the trough to be raised or lowered at its outer end. This horizontal axis of the carrier-trough coincides with the axis of the lower belt-carrying roller. The horizontal shaft which is in the same plane with the vertical shaft, and which engages with the said vertical shaft by beveled gears, is supported on the turn-table and is always parallel with the horizontal axis on which the inner end of the carrier-trough is supported, and may be identical with said horizontal axis, and at the same time identical with the lower roller of the carrier. This horizontal shaft being thus parallel with the axis of the lower carrier-roller, when not identical with it, is geared with the latter by intermeshing pinions on the outer ends of said shaft and roller, such pinions, of course, remaining always in mesh when the outer end of the carrier-trough is raised and lowered. The supporting arms which rise from the turn-table and uphold the inner end of the carrier-trough are rigid, so that when the outer end of the carrier-trough is moved from side to side such movement rotates the turn-table, and it follows, not only that the vertical axis of said turn-table is the vertical axis on which the carrier-trough is laterally moved, but that all the gear wheels retain their intermeshing relation in all positions of the
88 turn-table, and may continue their operation and thereby keep up the movement of the carrier while the position of the carrier-trough is being changed in any and every direction.

I find no such devices and no such capability in any of the defendants' exhibits. Taking them up in their order, I find the "Defendants' Exhibit Provisional Specification of George Thornton for Improvements in Straw-elevators" to be an extremely brief and preliminary statement concerning a proposed straw-elevator for a threshing machine filed as a provisional specification in the British patent office. The specification is unaccompanied by any drawing. It says "the straw-elevator consists of a long light trough having an endless belt passing over rollers at each end to convey the straw from the threshing machine onto the stack. The lower end of this trough is attached, as above described, by a circular plate and stud to the threshing machine, and the other end is supported on two props which can be lengthened or shortened to suit the elevation required.

The upper roller of the elevator over which the endless band passes is driven by an endless cord or band passing round a pulley on one end thereof and round another revolving pulley or drum on the threshing machine. By mounting the elevator on the circular plate or stud it can either deliver in a straight line from the outlet of the threshing machine or at any angle to the right or left, the endless driving cord or belt being caused to pass around guide-pulleys or through guides placed near the point of junction of the elevator with the machine so as to allow it to be deflected to the right or left for that purpose." It is impossible to obtain any
89 clear or definite idea of what construction the author of this specification had in mind from this brief and imperfect description. It is, however, certain from what he does say that the carrier-trough driven by a belt trained over the outer carrying roll would be incapable of vertical and lateral movement at the pleasure of the operator, while it is also certain that no devices having the characteristic features described in the Eby patent were present in the mind of this provisional patentee.

The Crandall patent describes a corn-harvester intended to strip the ears from the stocks in the field, and it contains at the rear of the machine a carrier, I, of the endless-belt order, said carrier-belt being mounted in a frame, which is permanently supported at a fixed angle of elevation, and is also destitute of any lateral movement whatever when in operation, though adapted to be swung to a position crosswise of the main machine when not in use, and therefore called a "swinging carrier." The driving devices include a vertical shaft carrying a gear wheel, and a second shaft which runs longitudinally of the carrier and has a beveled wheel for engagement with the wheel first mentioned and which operates upon the outermost roller of the carrier The carrier frame has no horizontal axis and is therefore incapable of vertical movement, and no such axis could be provided, as it now appears to me, that would not involve the throwing of the gear wheels out of gear or prevent their operation. Said Crandall patent therefore does not contain the characteristic features of construction and operation which
90 belong to the Eby device and which give to the latter the capacity of being simultaneously moved vertically and laterally or of being moved either laterally or vertically while continuing the operation of the carrier-belt.

The Defendants' Exhibit "Brinsmead's Patent" is a completed British patent for straw-carriers for raising and stacking straw as it leaves a thrashing machine. Two forms of mechanisms for connecting and operating the carrier with and from the thresher are shown in this patent. Neither one is such as to allow of lateral movement of the carrier without arresting its driving mechanism and its operation, and neither, therefore, presents the capability of the Eby device, in which both lateral and vertical movements of the carrier may be made without interfering with its carrying movement. On sheet one of the Brinsmead patent drawings the carrier consists not of a rigid trough, but of two endless ropes connected with each other by a netting (as stated in the specification), the said

endless ropes being trained over two pulleys at their lower ends, which are mounted on a frame or turn-table that is capable of being rotated in a horizontal plane as though it were mounted on a vertical shaft. The outer ends of the endless ropes are trained over pulleys mounted in the upper end of a telescoping frame, which at its opposite end or foot rests on the ground and which by change of its length or inclination varies the angle of inclination on the part of the carrier-netting or the height of the outer end of said carrier. There is no vertical shaft carrying a spur wheel and no horizontal shaft always parallel with the axis of the carrier-pulleys, and
91 there is no other device in said drawing adapted to permit the carrier to be raised and lowered and at the same time swung from side to side or to permit the carrier to be swung from side to side alone without arresting the motion of the carrier. Referring to said sheet one of the drawing again, *a a* is a trussed parti-circular frame, between the ends and in the diameter of which are mounted the carrier-pulleys *e e*. The circular rim *a a* of said frame slides in grooved brackets *b b* on the threshing-machine frame, and is held back in said brackets by means of a reawardly projecting arm, *d*, which engages with a parti-circular stationary frame piece, *c*, attached to the frame of the threshing machine back of and concentric with the frame rim *a*. A set-screw in the arm *d* is arranged to clamp upon the stationary circular frame *c*, so as to hold the rotating frame *a* in any desired position with respect to its lateral direction upon the threshing-machine frame. The part of the threshing machine which drives the carrier is a horizontal transverse crank shaft, *h*, which is provided with a belt pulley, *g*. From this belt pulley passes a belt to a pulley, *i*, mounted on a flexible horizontal shaft, *j k*, secured on the truss-work of the frame *a* and engaged with a pinion at the end of the part *k* with one of the adjacent carrier-pulleys. In order for this belt to work it is plain that the shaft *j*, which carries the pulley *i*, must be kept parallel with the treshing-machine shaft *h*, no matter what the direction laterally of the carrier with reference to the threshing machine. The said shaft *j k* is therefore made flexible and adjustable on the frame *a*, which is done by providing for a movement of one of the bearings for the end of the shaft *j* on one of the
92 radial truss braces *l* of the said frame *a*. In figure two of the drawing, sheet one, I think it is intended to show a key or wedge for fastening the shaft-bearing box to said frame piece *l*. At any rate, some permanent fastening must be provided at this point for firmly holding the said shaft-bearing box against the tension on the drive-belt, and it is clear that whenever the position of this bearing box is to be changed it will be necessary to stop the machine while the readjustment is being made. It is therefore certain to my mind that the lateral movement of the carrier cannot be made without stopping its operation. But the device shown in said sheet one of the Brinsmead patent is impracticable and inoperative, as will be next made plain. Referring to said figure two of this sheet, it will be seen that the center of said frame *a* lies in the axis of the pulleys *e* and midway between them, as I will indi-

cate by a pencil mark. The pulley shaft *j* is mounted between this axial point of the frame *a* and its rear margin, and any lateral movement of the carrier or rotative movement of the frame *a* will therefore carry the pulley *i* nearer to or farther from the stationary pulley *g* and will swing said pulley *i* out of alignment with the pulley *g*. This last fact seems to have occurred to the inventor, and he provides for maintaining said pulleys in line by making the pulley *g* movable longitudinally on the crank shaft *h*, but this does not take care of the other difficulty, the result of which is that a belt which is of proper length to drive the carrier in one position of the latter will be too long or too short to drive it in another position. This difficulty will be increased by the adjustment of the shaft *j* into parallelism with the shaft *h*, and the device as a
93 whole is therefore utterly impracticable in any case. Leaving the question of operativeness out of account, it will be observed that the shifting and readjustment of the pulley *g*, as well as the shifting and readjustment of the bearing box of the shaft *j* or the bar *l*, is a necessary accompaniment of any material lateral movement of the carrier, and that such readjustment of these two parts in the driving mechanism are obviously impossible, from anything shown or said in the patent, without stopping the movement of the carrier.

Sheet two of the Brinsmead patent shows a very different set of devices for connecting a laterally and vertically movable straw-carrier with the threshing machine. In this drawing a rigid frame or trough is provided for the carrier, which holds the belt thereof taut, which belt is mounted on two transverse rollers arranged transversely to the carrying frame, one at each end of the latter. The outer end of the carrier-frame is in this case raised and lowered by hoisting ropes trained over pulleys, which are supported from the threshing-machine frame. To allow of this vertical movement of the carrier-frame the latter is joined by a horizontal pivot or axis to a bracket, *b*, which bracket is also pivoted on a vertical axis. This vertical axis is not stationary, but is movable from side to side of the threshing machine by means of pinions *d d* on its upper and lower ends, which mesh with horizontal stationary racks *c c* running crosswise of the threshing-machine frame. The driving mechanism of the carrier is essentially the same as that shown in sheet one of this patent drawing and hereinbefore described—that is to say, a belt passes from a pulley, *n*, upon a horizontal
94 shaft of the threshing machine to a pulley, *m*, on a horizontal shaft, *l*, on the inner end of the carrier-frame. The shaft *l* is connected by a universal joint with a shaft, *k*, carrying a pinion, *j*, which meshes with a pinion, *i* (mismarked in the drawing *l*), on one end of the inner or lower roller of the carrier. The parts *l k*, connected by a universal joint, as stated, form one flexible shaft. The part *l* which carries the belt pulley *m* is apparently mounted or has its bearing in a plank which reaches back into the neighborhood of the shaft which carries the belt pulley *n*, and I should say might be intended to keep the said part of the shaft *l* parallel with the threshing-machine shaft and the pulleys *m n* in alignment, though pre-

cisely how this is done, if at all, is in no way clear, particularly as figure one seems to contradict the suggestion of figure three that the inner end of said plank bears against the threshing-machine shaft. The specification is wholly silent as to how the driving belt which passes over the pulley- *m* and *n* is kept taut and as to how said pulleys *m n* are kept in alignment, and the drawings illustrate no devices whatever for this purpose. I notice that the said driving belt is located in line with the middle of the carrier and threshing machine, and therefore over and forward of the vertical pivot of the bracket *d* when said bracket is in the middle of the machine, or, in other words, when the carrier-frame is in line with the threshing machine. It is probably intended in a vague way, and by some means not shown or described, to keep the said pulleys *m* and *n* in alignment and at a uniform distance apart, so that the belt will always be taut, and at present, making no reference to the manifest inoperativeness of the construction so far as illustrated and
95 described, I here merely point out that the use of any means whatever which will keep the pulleys *m* and *n* in line and the belt taut will render impossible a simultaneous lateral and vertical movement of the carrier which is at all at the pleasure of the operator. Both a vertical and a lateral movement of the carrier may be made on the assumption of such means of keeping the pulleys and belt in condition for work, but it will be a combined movement of a particular kind, range, and direction, and not at all such a movement as is desirable and necessary to constitute a practical machine—that is to say, on the said assumption (except as the movement is modified by the location of the joint in the shaft *l k* at one side of the pulley *m*) the carrier will always be most elevated at its outer end when it is directly in front of the machine and will be lowered as it is swung to either side. This results from the horizontal axis by which the carrier is joined to the bracket *b* and of the location of the bracket *b* itself at a point below and between the axis of the pulleys *m n*, as clearly seen in figure one. To keep the pulley *m* in line with pulley *n* in any lateral movement of the carrier involves a lateral movement of the bracket *b* by means of the racks and pinions *c d*, as, for example, to swing the outer end of the carrier to the right would necessitate carrying the bracket *d* to the left, and this would result in a certain definite lowering of the carrier on its pivotal connection with said bracket. The same would be true in swinging the bracket to the left from its directly projecting position, so that when swung from side to side past its central position the outer end of the carrier will describe an upwardly directed curve, which would be always the same and limited and
96 determined by the length of the driving belt and the distance of the bracket *d* below said belt. It is plain that no vertical movement of the carrier can be made on its pivotal connection with the bracket except by lifting it, in which case the driving belt is shortened and will fail to work, or by swinging the carrier to one side, as already stated, in which case it can be lowered only, and in a definite curve, as the length of the driving belt will permit it to fall.

Such a restricted movement *it* utterly useless for any practical purpose, but even this cannot be made without stopping the carrier. The carrier is held in any given position by two things, to wit, first, the ropes which uphold its outer end and which run one to each side of the threshing machine, and, second, the bracket pinions *d* engaged with the racks *c* on the thrashing machine. It would be impracticable to simultaneously manage both these two ropes and also the bracket-pinion shaft so as to keep the driving belt in constant working condition during the movement. The device is therefore entirely destitute of any capability of movement in both directions without stopping the carrier, to say nothing of its lacking the capability of all conceivable and possibly desirable movements in both directions which characterizes and distinguishes the Eby machine.

But the assumption that any means are present in this Brinsmead machine for keeping the driving-belt pulleys in line and the belt in working condition while the carrier is being shifted is not warranted by anything shown in the drawing or described or suggested in the specification, and said device is therefore inoperative and
97 worthless even for the useless movement of which the carrier is otherwise capable.

The Defendants' Exhibit "Richard Bryan's Patent" shows a straw-carrier for a threshing machine, which carrier, by itself or considered independently of the devices which connect it with the threshing machine, is capable of two movements—that is, capable of being raised or lowered and at the same time swung from side to side at its outer end—and for this purpose it is provided at its inner and lower end with both vertical and horizontal axes; but the nature of its driving connections with the threshing machine is such that if it is desired to swing the outer end of the carrier laterally one way or the other without at the same time raising or lowering it, or if it is desired to raise or lower it without swinging it laterally, it will be necessary to stop its operation and change the driving belt. It therefore lacks the characteristic capability, which marks the Eby device, of being moved indifferently in any and all directions without stopping its operation. By reference to the drawing of the Bryan patent it will be seen that in some respects the Bryan device resembles the Brinsmead device last referred to or that shown on sheet two of the Brinsmead patent—that is to say, the vertical and horizontal pivots on which the carrier is intended to have two movements is located below and between the driving and driven pulleys of a driving belt which communicates motion from the threshing machine to the belt of the carrier, and also that the outer end of the carrier is upheld by ropes or chains which extend therefrom to the threshing machine. These differences, however, are to be noticed. In the Brinsmead the vertical axis is movable crosswise of the threshing machine by means of the racks
98 and pinions *c d*, while in the Bryan device the vertical axis of the carrier is stationary, being an upright projection from a plate, H, which is bolted to the barn floor; also in the Brinsmead device the driving belt runs from the threshing machine

to a point near the lower end of the carrier-frame, while in the Bryan device the driving belt runs from the threshing machine to the outer and upper belt-roller of the carrier. In this last respect the devices are not so widely different as would appear from the above bare statement, for in both cases the pivotal points of the carrier are between and below the driving and driven pulley. In consequence of the resemblances pointed out the Bryan carrier may have the same valueless kind of simultaneous lateral and vertical movements that belong to the Brinsmead sheet-two device, without stopping the motion of the carrier-belt—that is to say, suppose the supporting chains Q of the Bryan patent were to be slacked off so as to let the weight of the carrier rest on the driving belt, then, in swinging the carrier from side to side, it would rise to its highest point when said driving belt reaches and stands in the same plane with the vertical axis of the carrier and would fall towards the floor in its movement to either one side or the other from this position. Now, it is absurd to suppose any such movement of the carrier to have any use whatever, for in throwing straw upon a stack or mow it is necessary that the carrier may be elevated as high when in one lateral position as in another, and that its elevation may vary from time to time as the stack is built up in all lateral positions of the carrier. That this is so is clearly indicated by the presence of the hoisting chains Q Q, together with the windlass device
99 F, by which said chain may be shortened and lengthened.

It is therefore plain to any mechanic from the situation of the belt which drives the carrier and the situation of the pivotal points of the carrier that belts of different lengths will be absolutely necessary to operate the carrier in all materially different positions, excepting two particular positions, in which the same belt will answer by its being shifted from one side of the machine to the other. In case of any material change of the carrier, therefore, it will be necessary to stop the carrier in changing the belt. I do not fail to notice that the driving belt is trained over intermediate guide-pulleys D D, and that the patent says that these guide or directing pulleys "may be made adjustable and attached to the side of the thresher as represented in figure one." The specification further says, "Their use is to change the direction of the rope or chain that drives the straw-carrier in any direction at either side of the thresher." The change in the direction referred to results from the change in position of the carrier, and said guide-rollers D D will not obviate the necessity of change in the length of belt except in so far as they are adjustable outwardly and inwardly or to and from the side of the thresher. Now, there is nothing said in the patent about any such outward and inward adjustment of these guide-rollers, and nothing is shown in the drawing to indicate that any such direction of adjustment is intended or referred to in the words quoted. I think the adjustment referred to is a vertical one, because the patent says "adjustable and attached to the side of the thresher as represented in figure one," and because, in said figure one, the plate which carries said guide-rollers is attached

to the side of the thresher by screws, which will permit
100 it being removed and set either higher or lower, as the case may require. To show an inward and outward adjustment would require either a plan view or a front view. There being no inward and outward adjustment of the guide-roller shown in either figure one or elsewhere, and none alleged or described in the specification, there are no means present in said patent by which one rope can be made to work the carrier in two lateral positions at the same elevation or in two elevations in the same lateral position, and there is therefore no capability in said Bryan device of any practical and useful change in the position of the carrier such as is necessary to the machine and as contemplated by this or by the Eby patent without arresting the operation of the carrier for the purpose of changing the belt.

In neither the Bryan nor the Brinsmead patent is there shown a vertical axis for the carrier, consisting of a shaft or its equivalent, and to which the power is applied from the thrashing machine for the purpose of driving the carrier-belt, and, of course, there is no mechanism corresponding with a horizontal shaft in the plane of said vertical shaft and geared therewith and always parallel with the carrier-rollers for communicating motion from said vertical shaft to said carrier-rollers, these being the characteristic features of construction in the Eby device from which the distinctive capabilities of the Eby device are derived. I find, therefore, that neither of the Brinsmead devices nor the Richard Bryan device contains either the features of construction or the mode of operation belonging to said Eby device.

The patent to Nimbs, marked Defendants' Exhibit "A. B.
101 Nimbs and John C. Clifford Patent," shows a floating grain-elevator, which includes an elevator leg or carrier, provided with transverse rollers at its opposite ends over which the carrying belt is trained, and a turn-table with a vertical axis which supports the upper end of said leg, together with mechanism by which motion is transmitted from the vertical shaft which forms the vertical axis of the turn-table to the upper roller of the carrier. The carrier-leg in this case depends at its free end, and from all the indications present in the patent it has no horizontal axis whatever and no swinging movement except upon its vertical axis. Moreover, neither one of the horizontal rollers over which the belt is trained has an actually or practically permanent position in the device or maintains a definite distance from the shaft which communicates motion thereto. In short, the elevator leg seems to have a permanent angle of projection and to be capable of being swung around laterally and of being bodily raised or lowered, while always preserving this angle of projection or inclination from the vertical. To support the carrier-leg E from the turn-table D and to at the same time provide for this bodily vertical movement of the carrier-leg, two uprights G G rise from the turn-table and are connected by a cross-piece, G^2, at their tops. Fitted between the uprights G G is a sliding frame, F, in which the upper end of the carrier-leg E is secured. Several considerations lead me to conclude that

said leg is secured in the frame F as to be destitute of any movement upon a horizontal axis: First, the specification says nothing about its having such a movement; second, it is shown depending at an angle from the uprights without any visible support other than may be derived from a rigid attachment
102 with the frame F. Third, the lower cross-beam of the frame F, as shown in figures one and 3, cannot occupy the position there shown, except by passing through the carrier-leg between the opposite sides of the belt and between the inner enclosing boards of the two branches of said leg. Barely room for this cross-bar is shown in figure two, if passing through the central space between the branches of the leg. A cross-bar in this position would prevent any material movement of the leg. Fourth, the expansible and compressible section of the discharge pipe p^2, when either fully extended or fully compressed, would be injured by an outwardly and inwardly swinging movement of the elevator leg, and in the compressed position of said pipe section p^2 the passage through the same would be contracted or closed by such a movement of the elevator leg E. Fifth, there is no need for any such movement of the elevator leg on a horizontal axis. Said leg is always required to be in the dependent position shown in figures one and three of the drawing. To remove grain from a boat alongside the floating hull A the leg would be bodily lowered through the hatchway of the boat, being permanently projected far enough to enter said hatchway. To discharge grain from the hold of the hull A it would similarly be raised and lowered through openings provided in the proper position in the deck of the hull to receive it. Sixth, it would, therefore, be a disadvantage rather than an advantage to provide a swinging movement of the leg E on a horizontal axis. From all these considerations I therefore conclude that the elevator leg in the Nimbs patent is rigidly fixed to the sliding frame F and that it has but one swinging movement—that upon the vertical axis of the turn-table.

103 I notice that the Nimbs patent specification says:

"The elevating leg and all its attendant machinery being thus supported upon the turn-table, it is evident that the turn-table may be revolved so as to place the leg in any desired position, either to elevate from its own vessel such grain as may be there stored or to elevate from a vessel alongside, without in the least interfering with the operation of the said machinery, all the parts of which move together and retain the same relative position."

It will be observed that the patentee says only that the turn-table may be revolved without interfering with the operation of the said machinery, &c. He does not say that the elevator leg may be swung out and in as well as revolved, and it seems to me that if the elevator leg had any such outward and inward swinging movement or adjustment the patentee, being thus particular to mention the capacity of his device, would have included this fact in his statement. His failure to refer to any such outward and inward movement of the elevator leg affords, under the circumstances, an addi-

tional reason for the opinion above expressed that said leg has no such movement.

I call attention in the next paragraph of the Nimbs specification following that last quoted, which reads:

"The table is held firmly in any desired position by means of clamps o^3, which secures it to the bed. When it is wished to move it, it is simply necessary to loosen the clamps, when the action of the spur wheel H upon the pinion H^2 will cause the table to revolve until the desired position is attained and the clamps again tightened."

104 This statement does not say that the operation of the elevator leg will be continued while the turn-table and the leg thereby supported are being revolved, but, on the other hand, it implies that their operation will cease, or, at least, that their motion will be lessened, for it is only by the complete or partial arrest of the rotative motion of the pinion H^2 that the revolution of the turn-table can be effected, while it is entirely plain that any revolution of the turn-table by means of the spur wheel H and pinion H^2 can be produced in only one direction without changing the direction of motion on the part of said wheel H and its vertical shaft, and thus, in one case at least, stopping the carrier while the change is effected. Now, this Nimbs floating elevator is necessarily a very large and cumbersome apparatus, and its rotative movement, to be made safely, must be made slowly. To rely upon a partial arrest or a mere slowing of the belt-driving mechanism, due to the friction of the various parts, would be unreliable and unsafe, for said friction might at one time be less than at another, and even less than would result in any rotative motion whatever of the turn-table, while on the other hand it might at other time- be so great that the rotative movement of the turn-table would be faster than desired and carry the elevator leg beyond a desired point or against the vessel or elevator with danger of injury. The probability is, that in this Nimbs floating elevator, if one was ever built, some provision was made in the machinery for driving the vertical shaft I, by which its direction of motion could be reversed and by which its speed of motion could be lessened to a safe rate for carrying the turn-table and elevator leg around slowly enough for safety

105 and permitted to be arrested accurately at any desired point. This would, of course, involve the stoppage of the operation of the elevator while changing the position of the elevator leg.

Then, it is to be borne in mind that in a grain-elevator ther no reason for continuing the operation of the elevator or carrier while changing the position of said carrier or leg, as there is in the Eby device. The carrier of the Nimbs device can convey grain only when the leg is let down into a grain bin, and when it is once let down into such a bin there is no occasion for changing its position. When its position is to be changed to another bin it is lifted out of the grain and may obviously as well be stopped as not. It is therefore in keeping both with the uses of the machine and with the requirements of its handling as to safety, and it is also consistent

with the statements quoted from the patent to suppose that the operation of the carrier-belt in the elevator leg of the Nimbs device is arrested when the position of said elevator leg is being changed, and it is my opinion from an examination of the patent that such is the contemplated and necessary mode of operating said Nimbs device.

In the Eby invention, on the other hand, it is not only the distinctly stated purpose of the inventor to provide for continuing the operation of the carrier-belt while shifting the carrier to any desired position, but it is also a very great advantage to the shelling machine, to which the carrier is an attachment, that the carrier may be so shifted without being arrested. This is so obvious as not to require to be specially pointed out.

106 Of course, if the elevator leg E of the Nimbs patent has no movement upon a horizontal axis, or, even upon the assumption that it has, if the movement of the elevator leg cannot be practically made without arresting the operation of the carrier-belt, then it follows that in no view of the said elevator device of the Nimbs patent can the latter be said to contain the invention or construction illustrated and described in the Eby patent, either original or reissue, because in the said Eby device a movement of the carrier is contemplated on both a horizontal axis and a vertical axis, and it is also contemplated in the said Eby device that both of these movements can be made at pleasure, either simultaneously or otherwise, without stopping the operation of the carrier-belt.

But in the Nimbs device there is contemplated a certain movement of the carrier that is not present and is not wanted in the Eby device, and to meet this difference in the requirements of the two machines there are provided certain special features of construction in the Nimbs machine that are not present in and that are inconsistent with the purposes and proper operation of the Eby machine. I refer to the bodily vertical movement of the Nimbs carrier-leg, by which said carrier-leg, while projecting at a uniform angle with a vertical line, is bodily raised and lowered in the operation of shifting its position from one grain bin to another. This peculiar movement of the carrier-leg in the Nimbs machine requires the use of a particular form of driving mechanism which differs essentially from that in the Eby device. I have reference to the belt L^3 of the Nimbs patent and to the weighted frame m^1 which slides up and down between the posts m^2 and which carries the belt-tight-

107 ening pulleys M M that rest on the two sections of the belt L^3, and by means of which the tension on the belt L^3 is kept substantially uniform at all elevations of the carrier-leg. As an incident in the use of the driving belt and the belt-tightening pulleys and frame, the horizontal shaft K^2 is necessarily set off to one side of the turn-table and out of the plane of the main vertical shaft I, on which said turn-table has its axis. This is in order that there may be a lateral difference in position between the pulley on said shaft, K^2, and the pulley of the carrier, so that the weighted belt-tightening pulleys may operate between them. This necessary location of the shaft K^2 involves the use of a second vertical shaft,

J, of course, out of line with the shaft I and geared with the shaft I by the pinions H H². It would certainly be impracticable in the said Nimbs device to drive the carrier-roller otherwise than by a belt, which can be thus shortened and lengthened by means of the weighted-pulley frame, and impossible to use the direct gear-wheel connections employed in the Eby device for communicating motion from the vertical to the horizontal axis of the carrier. Said Nimbs device is therefore, in my opinion, an essentially different construction from that shown and described in the original and reissued Eby patents.

Defendants' Exhibit "Davenport Patent" merely shows a carrier attached to a threshing machine, which carrier is of the endless-belt order, but has no swinging movement either in a vertical or in a lateral direction, the rollers thereof being fixedly mounted in rigid extensions of the side pieces of the threshing machine.

Defendants' Exhibit "Reading Patent" shows a corn-
108 shelling machine having both a feed-carrier, which conveys the corn to the shelling mechanism, and another cob-carrier, which carries away the cobs after the corn has been removed therefrom. Neither of these carriers appears to have any adjustment whatever and nothing is said in the specification concerning such an adjustment. They are said to be detachable, but they are not movable either laterally or vertically. Neither the Reading patent nor the Davenport patent, therefore, contains the characteristic features of construction and operation found in the Eby device.

Having pointed out the several constructions of the defendants' exhibits and compared them with that of the Eby device, I next compare the claims of the Eby original and reissued patents with the prior art as shown in said defendants' exhibits.

Claims one and two of the original Eby patent read as follows:

"1. The combination of the block *b*, adapted to revolve as described, and the hook-bolts *e e*, for supporting a carrier, as described."

"2. The combination of the block *b* and the central vertical shaft and its connections, substantially as described."

The term "hook-bolts" as used in claim one above quoted is, to my mind, plainly an error. The parts referred to are undoubtedly the arms *e e*, which rise from the block *b* and which support the carrier. Corrected in this respect the said claim one will read:

"1. The combination of the block *b*, adapted to revolve as
109 described, and the arms *e e*, for supporting a carrier, as described."

This claim one may be capable of a construction so broad as to embrace the unitary mechanism composed of the three parts referred to in the claim, namely, a revolving block or turn-table, a carrier, and arms rising from the turn-table or the revolving block for the support of the carrier. As an operative unitary device in carriers this combination would be complete, and, if new, the claim thus understood would be good, but in this broad sense the combination was not new and the claim is not good. Both devices shown in the Brinsmead patent, though inoperative as to their driving mechanism, contain the three elements embraced in the first claim of the Eby

original patent as above allowably interpreted, and as to said three matters in combination said Brinsmead devices are operative.

There are certain formal differences noticeable between the Brinsmead devices and those of this first claim of the original Eby patent, as there are between the Brinsmead devices themselves with respect to the same parts. For example, in sheet one of the Brinsmead patent the turn-table is not a full circle and is not located upon a central vertical shaft, but is guided in its rotation by its circular partial periphery—that is, it has an outside instead of an inside guide for its rotative movement. In sheet two of the Brinsmead patent the turn block or table has a vertical shaft axis, but it has no great breadth, except in one direction, and the arms which support the horizontal axis of the carrier project forward in-
110 stead of upward as in the Eby device. In the understanding expressed of the first claim of the Eby patent, however, I should not consider these differences and forms as at all material, the same result being attained by each of the several devices, namely, a provision for two movements of the carrier, to wit, one upon a vertical and the other upon a horizontal axis, both supplied by the turn-table and its arms.

In the Richard Bryan patent also a vertical and a horizontal axis for the carrier are provided by the casting I, which rotates upon a vertical shaft projecting from the base plate H, and which is provided with arms rising to the opposite sides of the carrier-frame, and by being pivoted thereto affords a horizontal axis for the carrier. The Brayan patent, therefore, contains a carrier, a turn block or table, I, and arms supporting the carrier upon its horizontal axis, all in general terms in accordance with the said first claim of the original Eby patent when understood in the broad sense above expressed.

The Nimbs patent contains a circular revolving block corresponding closely in form and attitude as well as in having a central vertical shaft for its axis with the revolving block *b* of the Eby original patent. Said Nimbs patent also contains a carrier, and in the uprights G G, which rise from the turn-table, it presents the feature of arms for the support of a carrier similar in location and general form with the arms *e e* of the Eby original patent. In my view of the construction of the Nimbs device said uprights G do not furnish a horizontal axis for the carrier and in any view they do not directly connect with or support said carrier, which is attached to the frame F, which is in turn upheld by the upper cross-beams G^2 through the medium of the rope and windlass shown in the
111 said Nimbs patent.

The Brinsmead and Bryan patents, however, contain each a single part which rotates on a vertical axis and has arms for supporting the carrier on a horizontal axis, and these two patents therefore furnish a complete anticipation of the first claim of the Eby original patent when interpreted broadly.

The second claim of the Eby original patent calls simply for the block or turn-table *b*, the central vertical shaft which rotates in said turn-table, and the connections of said shaft, by which I un-

derstand any system of gearing by which the motion of said vertical shaft may be communicated to the carrier irrespective of the ability of such gearing to continue its action upon the carrier-belt, whether the carrier-frame is fixed in position or being swung to a new position. The carrier is impliedly present, but the arms *e e*, which support said carrier and furnish its horizontal axis, are not made an element of the claim.

Looking into the prior art, as represented by defendants' exhibits, for the elements which are actually or impliedly present in claim two of the Eby original patent, I find in the Nimbs a turn-table corresponding with the block *b*, a central vertical shaft which rotates within and furnishes the vertical axis for said turn-table, and I also find connections or gearing proceeding from said shaft by which the motion of the latter is communicated to the carrier-belt. The claim two of the Eby original patent is not restricted to a carrier having a horizontal axis, and the Nimbs device, nothwithstanding the carrier therein has no horizontal axis, as I have found, seems
112 to furnish the same combination of elements called for by the terms of said second claim so interpreted broadly.

Next, comparing the claims of said Eby reissued patent with the prior art as represented by defendants' exhibits, the claims of said reissue are two in number and read as follows:

"1. A movable independent cob-carrier, wherein are combined a supporting and revolving block, a carrying frame whose inner end is supported upon said block and whose outer end is supported upon movable legs, and gearing applied at the inner end of the carrying frame and capable of acting continuously, whether the carrying frame is fixed in position or being swung to a new position, substantially as described."

"2. A movable independent cob-carrier, wherein are combined a carrying frame supported at its inner end upon a revolving block and the central vertical shaft and its connections, whereby the said carrying frame can be adjusted vertically and horizontally without stopping the operation of the endless belt, substantially as and for the purposes set forth."

By the words "a movable independent cob-carrier," beginning each of said claims, I understand a carrier frame and belt, which, as a whole, is independent of the frame of the machine or sheller, so as to be movable by itself, and the capacity for movement referred to in the word "movable" I understand to be the double movement or adjustment referred to in the second paragraph of the specification, wherein said carrier is said to be "adapted to be adjusted both vertically and horizontally." It is a necessity of this duplex movement that the carrier shall have both a vertical and a horizontal axis. By "a supporting and revolving block" I
113 understand the block or turn-table *b* about a vertical shaft and provided with arms for supporting the carrier, the vertical shaft supplying the vertical axis of the revolving block and the supporting arms supplying the horizontal axis of the carrying frame. By "carrying frame" I understand the trough or rigid structure, having transverse rollers at its opposite end, over which

is trained the endless carrying belt. By the words "supported upon said block," as applied to said carrying frame, I understand having its horizontal axis in the arms F, which rise from said block *b*. The movable legs are the legs G, which may be inclined at a greater or less angle, and thereby be made to support the outer end of the carrying frame in a more or less elevated position. By the words "gearing applied at the inner end of the carrying frame and capable of acting continuously, whether the carrying frame is fixed in position or being swung to a new position," as mentioned in the first claim, I may understand a gearing substantially as described—that is, one communicating motion from the vertical shaft to the lower horizontal roller of the carrier. This of necessity involves a horizontal shaft and beveled gears connecting said horizontal shaft with the vertical shaft. It also of necessity involves the condition that said horizontal shaft shall be located in the same plane as the vertical shaft, and that it shall swing around with the turn-table along with the lower roller of the carrier. As a mechanical fact, said horizontal shaft may be either separate from and parallel with the lower roller of the carrier, in which case it will be geared therewith, as any other parallel shaft may be geared, or said horizontal shaft may be coincident with the axis of said lower carrier-roller and
114 may form the shaft on which said lower roller rotates. The two shafts, one vertical and the other horizontal, and swinging with the turn-table as stated, are the necessary conditions whereby said gearing is capable of acting continuously, whether the carrying frame is fixed in one position or being swung to a new position, the words "new position," meaning, not some one but any of the positions, either higher or lower or to one side or the other, or both, as compared with the position from which the movement is made. The features of construction above pointed out contain the essential principle or the central idea of the Eby device. As no other gearing than that having these features is shown in the Eby patent, and as this gearing so shown can be understood as being meant by the claim, it is warrantable, I understand, to interpret the claim as referring to this kind of gearing, and I therefore so understand said claim.

The "connections" mentioned in the second claim in the phrase "The central vertical shaft and its connections, whereby the said carrying frame can be adjusted vertically and horizontally without stopping the operation of the endless belt," may, in my opinion and for the same reasons, be understood to mean the same kind of gearing as that referred to in claim one. In this view the two claims are identical, except as to the legs of the carrying frame, which are specified in claim one and omitted in claim two.

Looking back to the prior art as represented by defendants' exhibits for the subject-matter of those two claims of the Eby reissued patent, as thus interpreted and understood, I do not find in any of said defendants' exhibits the subject-matter of said reissued Eby claim.

115 Briefly returning to said defendants' exhibits for the purpose of comparison of the reissued Eby claim therewith—

I find in the Defendants' Exhibit "Provisional Specification to Thornton" no description whatever of any construction by which a vertical movement of the trough or carrier may be made, and no description whatever of any driving mechanism by which the carrier may be kept in operation while its position is being shifted. I therefore dismiss this provisional specification as having no bearing whatever on said claims of the Eby reissued patent.

The "Cyprian U. Crandall patent," as already pointed out, has a swinging carrier at the tail of the machine, but the swinging movement is exclusively upon a vertical axis and is intended for use only to allow the carrier to be swung crosswise of the machine and out of the way when said machine is not in use and is not intended for the lateral shifting of said carrier during the operation of the machine, as clearly indicated by the brace *g*, as well as by the construction of the receiving trough of said carrier and its arrangement with reference to the other carrier, D, of the main machine. The nature and arrangement of the gearing by which the carrier-belt is driven in this Crandall patent is such, moreover, that the carrier I could not work upon a horizontal axis if one were provided; so that said Crandall patent does not contain the invention of either the first or the second claim of the Eby reissued patent.

The full comparison and statement hereinbefore made relative to the Brinsmead patent render it unnecessary to here refer again to the essential differences in construction between the several Brinsmead devices and the Eby device, even if it be assumed for
116 the time being that said Brinsmead devices are in any way operative, which they are not. The said Brinsmead patent contemplates both a vertical and a lateral movement of the carrier, but it neither shows nor describes any mechanism for driving the carrier which can be kept in continuous operation while the position of the carrier is being shifted, even on the assumption of the operativeness of such driving mechanism. This has been, I think, conclusively shown and need not be again demonstrated. The Brinsmead patent does not contain the invention set forth in either of the claims of the reissued Eby patent.

The device shown in the defendants' "Bryan patent" has also been conclusively shown to be incapable of vertical and lateral movement from one position to any other desired position without such changes in the driving belt or its position as require the arrest of the operation of the carrier. In neither the Bryan nor the Brinsmead devices, moreover, is the carrier driven from a vertical shaft which forms or occupies the position of the vertical axis of the carrying frame, and generally in neither of these patents is there shown a driving mechanism for carrier-belt which corresponds in any particular, either of the principle or operation, with that described and shown in the Eby reissued patent and embraced in the claims thereof.

As to Defendants' Exhibit "Nimbs Patent," I have shown, as I believe, conclusively that the carrier-leg has only one movement, which is upon a vertical axis, and that it is therefore incapable of adjustment in two directions, as contemplated by the claim of the

Eby reissued patent. I have also shown that the Nimbs turn-table supporting the carrier-leg is incapable of being rotated in
117 one direction—at least, on its vertical axis—without stopping the operation of the carrier, and that it is practically incapable of being rotated in the other direction without stopping the operation of the carrier. Said Nimbs device, therefore, in my opinion, does not and cannot contain the invention set forth in the Eby reissued patent and specified in the claims thereof.

As to the Defendants' Exhibits "Davenport Patent" and "Reading Patent," it will not be urged for a moment that either contains the construction and operation set forth in the Eby reissued patent and specified in the claims thereof, and said patents are dismissed with a simple reference to the patents themselves, in which it appears on their face that the carriers therein shown are entirely rigid and fixed in position and have neither movement contemplated in the Eby device and reissued patent.

Nothing in the prior art, therefore, anticipates the claim of the Eby reissued patent as above defined.

Q. 3. Does the Thornton specification describe the construction or arrangement of guide-pulleys, by the use of which the carrier can be adjusted either vertically or horizontally, or both, without changing the belt, and does the said specification describe any construction or arrangement of guide-pulleys by which the changing of the position of the carrier may be effected without arresting its operation?

A. It does not. I think the author of said specification had in mind the purpose to provide some form of construction by which the position of the carrier could be shifted laterally without changing the belt, and that he intended to accomplish this in some
118 way by directing the belt over the guide-pulleys placed near the point of junction of the elevator with the machine; but it is not at all obvious from all that the specification states how the author hoped or intended to effect the result, and certainly the mere location of such guide-pulleys, "placed near the point of junction of the elevator with the machine," will not do. In this, as in other matters, said Thornton specification is incomplete and insufficient and fails to disclose any practical device whatever.

Q. 4. Do you find any thing or device described in the several defendants' exhibits heretofore referred to which causes you to modify in any way the opinion heretofore expressed by you to the effect that the machine represented by "Complainant's Exhibit King, Hamilton & Company's Device" contains the invention described and claimed in the reissued Eby patent?

A. I do not. Said defendants' device contains the same central idea or characteristic principle, put into operation by essentially the same construction, and producing identically the same result as that described in the Eby reissued patent. The differences between said defendants' device and that described and claimed in the said Eby patent relate exclusively to mechanical construction and are limited wholly to details of arrangement or mere form, and are such as lie wholly within the province of the skilled mechanic. As illus-

trations of the merely mechanical character of these differences I point out that the vertical shaft in the complainant's model Exhibit "Eby" is not hollow and is supported in place by a fixed plate with a hole in it, through which said shaft passes, while in the complainant's model Exhibit "King, Hamilton & Co.'s De-
119 vice" said vertical shaft is hollow or has a hole in it, through which a thick stud rises from the stationary frame, said stud being prolonged to form the axis of the turn-table. These devices are familiar equivalents, often used interchangeably. Again, in the Eby device the beveled gear on the vertical shaft is above the turn-table, while in the defendants' device it is below it. This is a mere change in the relative situation incident to the enlargement of said beveled gear for the purpose of its engagement directly with a gear upon the horizontal shaft when the latter forms the axis of the lower carrier-roller. The relation of the horizontal shaft to the vertical shaft is precisely the same in both cases, which is the essential feature of their employment—that is, the horizontal shaft, while swinging with the turn-table or carrier, is always in the same plane with the vertical shaft. Defendants' change of construction in this respect in no way changes the operation of the device, but amounts merely to a lessening of the number of gear wheels interposed between the vertical shaft and the carrier-roller and is accomplished in a way entirely obvious to a mechanic.

Q. 5. Compare the device represented by the complainant's model Exhibit "King, Hamilton & Co.'s Device" with the claims of the original patent to Henry H. Eby, the reissue of which is sued on in this case, and state whether or not you find the machine represented by said model to be within the claims of said original Eby patent and give your reasons for any opinions you may express.

A. I have made the comparison called for by the question and reply that *that* the said machine, which I will call the "defendants' device," falls clearly within the claims one and two of the Eby original patent, but does not contain all the details specified
120 as elements in claim three of said Eby patent. As to the claim one of said original patent, which is for the combination of block *b*, adapted to revolve as described, the arms (misscalled "hook-bolts") *e e* for supporting the carrier, and the carrier itself, it is plain that defendants' device has all these features, giving to the carrier the same capacity of double movement or productive of the same result *result* and operating in essentially the same way as described in said Eby original patent.

Claim two is for the combination of the block *b* and the central vertical shaft and its connections, substantially as described. This claim applies equally to the defendants' device as to that shown in the Eby patent, of which said claim forms a part. There is in defendants' device the revolving block, there is the central vertical shaft, and there are connections of said vertical shaft of essentially the same kind and of identically the same principle connecting the said vertical shaft with the lower roller of a carrier of the same description, which is mounted in the same way and by the same means

upon the revolving block for the same purpose and with the same result as in the Eby original patent.

Q. 6. Do you or not consider that there is shown in the Eby original patent and the drawings accompanying the same and the model marked "Eby" a cob-carrier capable of acting continuously, whether the carrying frame is fixed in position or being swung to a new position, and whereof the carrying frame can be adjusted vertically and horizontally without stopping the operation of the endless belt of the carrier? And give your reasons for any opinion you may express.

121 A. I find that the cob-carrying frame shown in the drawings of the Eby original patent is capable of being adjusted both vertically and horizontally without stopping the operation of the carrying belt, or, in other words of the patent, the carrier is capable of being operated continuously while its position is being changed either vertically or laterally, or both. The only doubt that can arise on this point springs from the question whether or not there are any means shown in the patent for keeping the vertical shaft b' permanently in one position, aside from the movable clamping bolts m, by which the turn-table may be fastened so as to prevent its rotation after the carrier-trough has been turned into a desired direction. In said original Eby patent there is a plate belonging to or fixed upon the frame a a, through which said vertical shaft extends and which is obviously intended to keep said shaft in place. This is shown in both figures one and two of the drawings, which, taken together, will illustrate its position perfectly. In figure one it is shown immediately above the pulley b^2 and extending from one to the other of the cross-beams, which are seen in end view adjacent to said pulley. In figure two said plate is illustrated as being let into a gain or recess cut into the top surface of the cross-beam and flush therewith. Taking these two figures together, it is clear that said plate is similarly attached to both cross-beams of the frame and surrounds the shaft b'. If the hole through it be of proper size, it will furnish a lateral bearing for said shaft and keep the same in place. Any mechanic would understand this to be the object of said plate and would fit its orifice to the shaft accordingly. In the complainant's model Exhibit "Eby" this plate is present and gives barely free passage to the said vertical driving
122 shaft, being provided with an orifice sufficiently closely fitted to said shaft to keep the latter in place. With the aid of this plate for laterally supporting the vertical shaft, it is entirely practicable to release the hook-bolts m m, which clamp down the turn-block b, and to turn the carrier in any direction without throwing the driving mechanism of the carrier-belt out of gear, and consequently to keep the carrier-belt in continuous operation while the carrier is being swung from one position to any other.

(Complainant's counsel offers in evidence certified copy of full-sized drawings of the original Eby patent, which is marked Complainant's Exhibit "Copy Eby Original Drawing.")

Q. 7. In the reissue of the Eby patent I find the statement that the arms F F′ are pivoted to the hangers F^4 F^3 on the line of the shaft of the roller E^2, so that the outer end of the carrying frame can be raised or lowered to any desired extent without throwing the cog wheels D^2 and E^3 out of gear and without affecting in the least the operation of the endless belt. Was this construction shown or described in the Eby original patent, specification, drawings, or model marked Complainant's Exhibit Eby?

A. The drawings of the original Eby patent and the model referred to clearly show this feature of construction, but the specification of the original patent makes no reference to this particular fact.

Q. 8. Does the Eby reissue or does it not show the character of the orifice in the plate or support lettered *b* in the reissue and referred to in your answer to question six?

A. The plate *b* of the reissued patent, being the plate shown
123 but not lettered in the original and referred to in my answer to question six, is illustrated in cross-section by an additional figure in the reissue, being figure three, and is there shown as having an orifice of only sufficient size to allow the vertical shaft C to pass through it, and said plate is consequently there shown as affording the necessary lateral support to the shaft to keep the latter in place. The specification of the reissued patent refers to this plate *b* twice in the paragraph beginning near the bottom of column one. The first reference to it is in these words: "This block may rest upon a plate or support, *b*, connecting the cross-pieces *a a′*." The second reference to it is as follows: "A vertical shaft, C, passes loosely through the plate *b*." * * *

Q. 9. What is the function or functions of the hook-bolts marked *m* in the original Eby letters patent and *b* in the reissued Eby patent, as shown and described in said original and reissued patents?

A. The function of said hook-bolts *m m* is, in my opinion, solely that of clamping the turn-table down so as to prevent its rotation after the carrier has been brought laterally to a desired position. The original patent refers to them in two places in the second column—first, at the top of said column, as follows: "*m m* represent bolts secured in the framework, the upper ends of which are turned over the block *b*, as shown;" second, at the end of the next paragraph, as follows: "The carrier may be turned for the purpose of discharging the cobs in any desired direction by revolving the block *b*, * * * it being secured in any desired position by means of the hook-bolts *e e*." The letters "*e e*" should be "*m m*" clearly,
as the parts which are marked "*e e*" in the drawing are not
124 hook-bolts and cannot be concerned in securing the block *b*, but are the supports which uphold the inner end of the carrier upon the block or turn-table *b*. By an obvious error in claim one of the said original patent the words "hook-bolts *e e*" are used, the error being in this case in the words "hook-bolts" and not in the letters *e e*, for the parts referred to in this claim are the parts for

supporting a carrier, and these parts are the arms *e e* and not the hook-bolts *m m*.

The reissued patent speaks of the same hook-bolts as having the same function of holding or clamping the turn-table, but also incidently and loosely speaks of them as guiding devices. There is no warrant for assigning a guiding function to said hook-bolts, and I do not see that said hook-bolts have anything to do with guiding the turn-table, which is perfectly guided or held centrally in place by the plate marked *b* in the reissued patent, through which, as well as through the turn-table, the vertical shaft passes.

Q. 10. State whether or not the several devices shown in the defendants' several patent exhibits referred to in question two of this deposition would, in your opinion, enable a mechanic skilled in the art to which the Eby invention pertains to make said device shown, described, and claimed in the Eby reissued patent.

A. For the reason of the differences in construction, operation, and results pointed out in the foregoing answers, it is my opinion that they would not.

Q. 11. Please compare the several claims of the Eby original patent with the several claims of the Eby reissued patent, sued on in this case, and state whether or not you find the claims of said reissued patent to be broader or narrower than the claims of the original patent, and give your reasons for any opinions you may express.

125 A. I regard the reissued claims one and two as narrower than claims one and two of the original patent: First, because each of said reissued claims contains or specifies more elements than are contained or specified in either of said original claims; and, second, the invention is limited by the terms of the reissued claims to carriers, while in the said two original claims there is no such limitation; and, third, the gearing mentioned in the first claim of the reissue and the "connections" of the central vertical shaft, referred to in the second claim of the reissue, are in said claims specifially limited to those which are not only substantially as described, but which are, as stated in the first claim of the reissue, capable of acting continuously, whether the carrying frame is fixed in position or being swung to a new position, and are, as stated in the second claim of the reissue, specifically adapted for the vertical and horizontal adjustment of the carrier without stopping the operation of the endless belt. By the terms of the second original claim there is no such restriction as to the continuous operation of the carrier while being adjusted.

As I have heretofore pointed out, there are three elements expressed in the first original claim, namely, the revolving block or turn-table *b*, the supporting arms *e e*, and the carrier. In the first reissued claim there is contained in the words "supporting and revolving block," as I understand them, both the vertical block and the supporting arms *e e*, and there is also next mentioned the carrying frame, specified as having its inner end supported upon said block. So far this first reissued claim corresponds with the entire

first claim of the original patent, but said first claim goes
126 on and includes the following additional elements, namely, the "movable legs" and gearing applied in a particular way and of a particular kind—that is, adapted to give a particular mode of operation on the part of the carrier-belt. As compared with claim one of the original, the first claim of the reissue is narrower by the addition of each one of these last-mentioned elements, not found in the original claims, and much more is it narrowed by the presence of them all.

Comparing claim two of the reissue with claim two of the original, while the latter specifies only the block *b*, the central vertical shaft, and, in general terms, the "connections" of said vertical shaft, the former or reissued second claim specifies a "movable independent carrier" as the subject of the invention; specifies also the "carrying frame" as an element and as being supported at its inner end upon the revolving block, and further specifies the "connections" of the "vertical shaft" (both mentioned as in the original claim) as being of such a character (substantially as described and shown in the patent) as will enable the carrier to be adjusted both vertically and horizontally without stopping the operation of the endless belt. As to the elements of the block and the central vertical shaft the second reissued claim is quite as specific as the second original claim, while as to the "connections" of the "central vertical shaft" the second reissued claim is more specific than is the second original claim. In addition to this the second reissued claim specifies the carrying frame, which the second original does not in terms contain, and it also by its terms restricts the invention to an
127 "independent movable carrier," while the second original does not in terms contain any such restriction.

For these reasons I regard the reissued claims as narrower in scope than the first and second claims of the original patent.

Q. 12. Referring again to the Defendants' Exhibit "Brinsmead Patent," please state what has to be done in order to move laterally or vertically the carriers shown on sheets one and two of the drawings of said exhibit.

A. Taking up sheet one, for the vertical adjustment of the carrier, the windlass shaft *s* will be rotated to extend the telescoping tube *o n*, or the windlass shaft *v* may be rotated to wind up the rope *y*, which is engaged with the stake Z. This latter operation brings the supporting frame more nearly vertical, and the latter operation lengthens the said frame. To shift the carrier laterally it will be first necessary to set a new stake, *v*, for the rope *y* in a line with the desired new position of the carrier support and to bodily lift the carrier off the ground and set it in the new position. This is because said support is mounted on wheels, which adapt the said support to a movement on the ground in only one direction. Next, in shifting the carrier laterally it will be necessary in carrying out the inoperative scheme of the inventor to loosen the set-screw in the bar *d*, then rotate the frame *a*, and then reset said screw *d*; next, to loosen the bearing box in which runs the shaft *j* from frame

piece *l*, to which it is supposed to be fastened, in order that said shaft *j* may be again secured in a position on the rotative frame parallel with the driving shaft *h*. After being thus arranged in its
128 new position said bearing box will again need to be fastened to the bar *l*. It will also be necessary to shift the position of the driving pulley *g* one way or the other on the shaft *h*, in order that it may stand in line with the pulley *i*, the said pulley *i* being carried laterally, of course, in the rotative movement of the frame *a*. Finally, it will be necessary to put on a new belt, either shorter or longer than the one taken off, because in the adjustment of the parts the shafts *j* and *h* will be brought nearer to or farther from each other. The operation of the carrier will of necessity be stopped during the work of making these changes.

Next, looking at sheet two, I find that in raising and lowering the elevator when not swinging it from side to side it is only necessary to rotate the shaft L, which winds up or lets off the rope H upon or from the drums K. To swing the elevator or carrier from side to side, first, one of the drums K will be separately turned to slacken or shorten rope H, then the vertical shaft *e* will be rotated to carry the bracket *b* one way or the other along the rack *c*. Before doing this the belt should be taken off the pulleys *n m*, unless the new position is going to require a shorter belt, in which case it may be allowed to remain until the change is made. Before lowering the carrier in any case the said belt will need to be taken off because a lower position of the outer end of the carrier without lateral movement of said carrier will always require the application of a new and longer belt for said pulleys. I do not know what the inventor intends to do with the plank-looking contrivance through which the shaft *l* passes and which is slotted both vertically and horizontally at the end opposite said shaft, but it is evident that said slots signify some sort of adjustment of something which I can only assume will
129 need to be made when the position of the carrier is to be changed. Leaving out of account such matters as the patent is silent upon, I can only say that the adjustment of the several devices specified, namely, the suspending ropes H and the brackets *b* and the driving belt, will require that the machine be stopped or that the operation of the carrier be arrested while such changes are being made in the position of the carrier.

Q. 13. Can the movable pulley *h* in sheet one of the Brinsmead drawings and the movable pulley *n* in sheet two of said drawings be shifted while in motion by any means shown in said Brinsmead patent and drawings?

A. They cannot.

(Signed) MELVILLE E. DAYTON.

Subscribed and sworn to before me this 20th day of June, A. D. 1885.

GIDEON F. LAMAGHEN,
Notary Public.

[NOTARIAL SEAL.]

Adjourned by consent of parties for cross-examination on notice of either party.

GIDEON F. LANAGHEN,
Notary Public.

ROOM 11, No. 95 FIFTH AVENUE, CHICAGO, ILLINOIS,
MONDAY, *October* 13, 1885—two o'clock p. m.

Lorenzo Leland, Esq., counsel for defendants, appeared and waived cross-examination of the witness, Melville E. Dayton.

GIDEON F. LANAGHEN,
Notary Public.

130 UNITED STATES OF AMERICA,
Northern District of Illinois, State of Illinois, County of Cook, } *ss:*

I, Gideon F. Lanaghen, a notary public duly appointed by stipulation of parties to take testimony in the cause in equity now pending in the circuit court of the United States for the northern district of Illinois, wherein Henry H. Eby is complainant and Solomon E. King, Hugh M. Hamilton, and John H. Gilman are defendants, do hereby certify that the foregoing depositions of George Gaskill, Henry H. Eby, and Melville E. Dayton were taken by and before me, pursuant to the annexed notice, at the office of Jesse Cox, Jr., Esq., room 11, No. 95 Fifth avenue, Chicago, Illinois, at the dates and times therein noted, to wit, the depositions of George Gaskill and Henry H. Eby on the third day of June, A. D. 1885, and that of Melville E. Dayton on the fourth, fifth, sixth, eighth, ninth, eleventh, thirteenth, fifteenth, and twentieth days of June, A. D. 1885, as therein appears; that the said depositions were taken on the part of the complainant to be used at the hearing of said cause; that the said George Gaskill, Henry H. Eby, and Melville E. Dayton were before the commencement of their examination duly sworn by me to testify the truth, the whole truth, and nothing but the truth in the cause aforesaid; that their depositions were reduced to writing by me from their respective statements, and when completed said depositions were read over to said witnesses respectively and respectively signed and sworn to by them in the presence of counsel for the respective parties and before me.

131 And I further certify that I am neither attorney nor of counsel for any of the parties in said depositions or caption mentioned, and am in nowise interested in the result of said cause.

In testimony whereof I have hereunto set my hand and notarial seal this thirteenth day of October, A. D. 1885.

GIDEON F. LANAGHEN,
[NOTARIAL SEAL.] *Notary Public.*

(Endorsed:) Filed Oct. 15, 1885. Wm. H. Bradley, clerk.

132 UNITED STATES OF AMERICA,
Northern District of Illinois, State of Illinois, County of Cook, } ss :

In the Circuit Court of the United States for the Northern District of Illinois. In Chancery.

HENRY H. EBY
vs.
SOLOMON E. KING, HUGH M. HAMILTON, and JOHN H. GILMAN.

At Chicago, Illinois, on the sixteenth day of October, A. D. 1885, at eleven o'clock a. m., before Gideon F. Lanaghen, a notary public, pursuant to the annexed notice, the parties to the above-entitled cause, the complainant by his counsel, Jesse Cox, Jr., Esq., and the defendants by their counsel, John G. Manahan, Esq., met at the office of Jesse Cox, Jr., Esq., room 11, No. 95 Fifth avenue, Chicago, Illinois, when the following proceedings were had:

ROOM 11, NO. 95 FIFTH AVENUE, CHICAGO, ILLINOIS,
TUESDAY, *October 16th*, 1885—11 o'clock a. *a.*

Present: Jesse Cox, Jr., Esq., solicitor for complainant; John G. Manahan, Esq., solicitor for defendants.

133 JOHN Q. ADAMS, a witness on behalf of the complainant, was produced, sworn, and examined in chief by JESSE COX, Jr., Esq., and testified as follows:

Q. 1. What is your name, age, residence, and occupation?

A. John Q. Adams; my age is forty-six years; residence, Marseilles, Illinois; occupation is manufacturer of agricultural implements. I am vice-president of the Marseilles Manufacturing Company.

Q. 2. Does the Marseilles Manufacturing Company manufacture cob-carriers for corn-shellers?

A. They do.

Q. 3. Does that company manufacture cob-carriers under a license from any one?

A. It manufactures them under a license from Henry H. Eby, of Mendota, Illinois.

Q. 4. State, if you please, the character of the cob stacker or carrier manufactured and sold by the Marseilles Manufacturing Company.

A. It is a cob-stacker which conveys the cobs fourteen feet—about that—from the machine, and is driven by stationary gearing, but so arranged that it can be swung at any angle from the machine up to one-half the circle or more, and so that it can be adjusted at any height to which the cobs can be conveyed—that is, the outer end of it can be adjusted. The cobs are conveyed by wooden slats which are attached to two rubber straps, making what would be called a flat-bottomed carrier.

Q. 5. In what manner is this result accomplished—I mean
134 the result of enabling you to swing the carrier at any angle from the machine, vertically and horizontally?

A. We convey our power to a stationary shaft, on which there is a pinion which meshes into the cogs on the under side of the intermediate wheel, which lays horizontally and which has cogs on the under side and also on the upper side. This wheel rests upon a frame or casing, and there is also an upper casing, which closes down over the wheel, which bears two supports, in which rest the boxes for the lower conveyor shaft. This upper case is pivoted on the same stud on which the intermediate wheel loosely revolves. The lower conveyor shaft on one of its outer ends has a spur wheel which, passing down through an opening in the upper cases, meshes in the cogs on the upper side of the intermediate wheel. The upper case being thus pivoted, it can be swung in any direction desired, and, as you will readily see, the spur wheel on the end of the lower conveyor shaft would always be meshing into the intermediate wheel and thus receive its motion at whatever angle it might chance to be, whether horizontally or perpendicularly, as the boxes on the lower conveyor shaft are round and so would permit the vertical adjustment of the stacker.

Q. 6. In what direction is the shaft or stud which forms the axis of the flat or intermediate wheel?

A. It is attached to the lower case spoken of and is perpendicular.

Q. 7. How long has the Marseilles Manufacturing Company been making these cob carriers such as you have described?

A. I cannot say exactly, but it would be since about 1873.

135 Q. 8. How many of such cob-stackers has said company manufactured and sold since the time they first commenced to manufacture them?

A. I don't know how many since they first commenced to manufacture them, but since we commenced to manufacture them under a license from Mr. Eby, which was August 28, 1877, the date we commenced to pay for them, up to July 1st, 1885, we have made and sold fifteen hundred and fifty-seven.

Q. 9. What proportion of the corn-shellers that you make and sell are accompanied by these cob-stackers?

A. I think there would not be less than 95 per cent., and I might say all of those except those which are fixed in warehouses, where they do not need them, but for outdoor shelling it is without an exception almost.

Q. 10. Is it or is it not a fact that these adjustable cob-carriers are more particularly adapted for use for outdoor corn-shelling?

A. They are more particularly adapted for outdoor corn-shelling. Perhaps I ought to explain, in connection with reply to the question as to how many or how nearly universally they are used, that I referred in that answer to our large power machines, but we are making a smaller, cheap power machine at the present time, on which we are using a stiff cob-carrier, adjustable only in the perpendicular. These are not included in that reply.

Q. 11. Are you acquainted with any other firms that manufacture cob-carriers for corn-shellers?

A. Yes, sir; the Joliet Manufacturing Company and the
136 Keystone Manufacturing Company of Sterling; the Sandwich Manufacturing Company, all in Illinois; also the King & Hamilton Company, of Ottawa, Illinois.

Q. 12. Are you acquainted with the kind of cob-stackers manufactured by the Sandwich Company?

A. Yes, sir.

Q. 13. How long has the Sandwich Company been manufacturing cob-stackers?

A. A little longer than we have—a few months.

Q. 14. When they first commenced to manufacture cob-stackers, what sort of cob-stackers did they manufacture?

A. I would say that it was very similar to that shown in complainant's model Exhibit "Eby." I am quite sure that they got their first castings from Mr. Eby to make their stackers from.

Q. 14. Does the Sandwich Manufacturing Company manufacture corn-shellers for outdoor use?

A. Yes, sir.

Q. 15. You may state, if you know, to what extent their outdoor corn-shellers are accompanied by cob-stackers such as you have last referred to.

A. I think in fully as large proportion as the Marseilles Manufacturing Company.

Q. 16. What sort of cob-stackers do these other companies which you have referred to manufacture and sell?

A. I think they all use what we call the V stacker, under Eby's patent—similar to the model referred to. I think that they all use
them now with the beveled wheel on the upright shaft and
137 another beveled wheel on the horizontal shaft of the conveyor meshing into it.

Q. 17. Do you know of any firm or company manufacturing corn-shellers for outdoor use that do not employ cob-stackers similar to those which you have described?

A. I think there are one or two firms in St. Louis that use a stiff stacker, but all the rest use the Eby stacker, except only on the cheaper machine, where they use a stiff stacker.

Cross-examination by Mr. MAHAHAN:

X Q. 1. Are you to any extent familiar with the practical operation of the cob-stackers such as are described in Mr. Eby's patent?

A. I am.

X Q. 2. In practice is it not true that the cobs are usually discharged either into a conveyance or upon a pile of some sort?

A. They are.

X Q. 3. In those cases in which the cobs are discharged from the conveyor to a wagon box, for instance, and carried away, is there any necessity or essential convenience in changing the direction or elevation of the cob spout?

A. Probably not, when the position is once established.

X Q. 4. In those case- in which the cobs are permitted to fall into a pile under the mouth of the discharger, is it not true that they

work their way back under the stacker, encircling the legs of the latter to such an extent as to render impracticable the oscil-
138 lation of the spout without withdrawing the legs from the cobs which might have accumulated around it?

A. That is owing entirely to the position in which the legs are placed with reference to the distance from the end of the stacker. Ordinarily the legs are placed so far back that the cobs will pile up very high before they will interfere with the lateral movement, and in that case they can be raised and moved without trouble.

X Q. 5. Is it not true that the conditions under which it is desirable to change the direction of the spout are those in which the cobs have reached such an altitude under the mouth of the stacker as to interfere with the discharge of the cobs therefrom?

A. I think not, because it may be desirable to move the point of discharge for quite a variety of reasons. For instance, a person may have two wagons prepared for receiving the cobs and but one team to draw them off; when one was loaded it would be desirable to move the cob-stacker to discharge into the other, or, in other cases, they might wish to discharge into a kind of a temporary crib, as I have sometimes seen it, while the wagon was being unloaded. I have also seen cob-stackers lengthened out to twenty or twenty-five feet in length, where the crib of corn was very large and very high and it was not desirable to move the sheller, and they were thus enabled as fast as the cobs had piled up high enough to interfere with the stacker to move it on a circle a few feet at a time and so make a kind of rick of cobs on the section of a circle.

X Q. 6. But, as a matter of fact, is it not more generally the practice where cobs are discharged into a pile or stack on
139 the ground and have accumulated so as to interfere with the oscillation of the stacker to stop the machine, remove the legs from the cobs, and to change the direction of the stacker to such a point where the cobs have not reached an inconvenient height?

A. I can hardly say whether it is more common to remove the position of the cob-stacker while in motion or when standing still. It may be done in either case without trouble.

JOHN Q. ADAMS.

Subscribed and sworn to before me this sixteenth day of October, 1885.

GIDEON F. LANAGHEN,
[SEAL.] *Notary Public.*

UNITED STATES OF AMERICA,
Northern District of Illinois,
State of Illinois, County of Cook, } ss:

I, Gideon F. Lanaghen, a notary public, duly appointed by stipulation of parties to take testimony in the cause in equity now pending in the circuit court of the United States for the northern district of Illinois, wherein Henry H. Eby is complainant and Solomon E. King, Hugh H. Hamilton, and John H. Gilman are defendants, do

hereby certify that the foregoing deposition of John Q. Adams was taken by and before me, pursuant to the annexed notice, at the office of Jesse Cox, Jr., Esq., room 11, No. 95 Fifth avenue,
140 Chicago, Illinois, at the date and time therein noted, to wit, on the sixteenth day of October, A. D. 1885, as therein appears; that the said deposition was taken on the part of the complainant to be used at the hearing of said cause; that the said John Q. Adams before the commencement of his examination was by me duly sworn to testify the truth, the whole truth, and nothing but the truth in the cause aforesaid; that his deposition was reduced to writing by me from his statements, and when completed said deposition was read over to said witness and signed and sworn to by him in the presence of the counsel for the respective parties and before me.

And I further certify that I am neither attorney nor of counsel for any of the parties in said deposition or caption mentioned and am in nowise interested in the result of said cause.

In testimony whereof I have hereunto set my hand and notarial seal this sixteenth day of October, A. D. 1885.

GIDEON F. LANAGHEN,

[NOTARIAL SEAL.] *Notary Public.*

(Endorsed:) Filed Oct. 17, 1885. Wm. H. Bradley, clerk.

141 United States Circuit Court for the Northern District of Illinois.

HENRY H. EBY
vs.
SOLOMON E. KING *et al.*

Testimony introduced on behalf of the complainant in the above-entitled cause, taken before Walter C. Carr, a notary public, within and for the city of St. Louis, State of Missouri, by agreement of the parties, commencing November 9, 1885, at two o'clock p. m., at the office of Knight Brothers, corner Broadway and Olive street, pursuant to the annexed notice.

Present: Mr. George H. Knight, on behalf of Henry H. Eby, and Mr. Charles E. Whitman, a witness produced on behalf of said Eby.

CHARLES E. WHITMAN, being duly sworn, testifies as follows in answer to interrogatories propounded by GEORGE H. KNIGHT.

Q. 1. Please give us your full name, age, residence, and occupation.

A. Charles E. Whitman; St. Louis, Missouri; age, 47; occupation, agricultural-implement manufacturer.

Q. 2. How long have you been engaged in your present business?

A. Well, I would say pretty much all my life, from boy-
142 hood. I have been engaged here in St. Louis since 1870.

Q. 3. Are you acquainted with what is known as the Eby

cob-stacker shown and described in reissue patent No. 7851 of August 21st, 1877?

A. I am to a certain extent, having used the same device in my manufacturing.

Q. 4. Have you manufactured this device under a license granted by Mr. Eby to the Whitman Agricultural Company?

A. I have.

Q. 5. How long have you been operating under that license?

A. I think some eight or ten years. I could not give the exact number.

Q. 6. About how many such cob-carriers have you manufactured and paid license upon during that time?

A. I cannot give the exact number, for the reason that I have not the record with me, but I should say that it would amount to several hundred.

Q. 7. Do you consider it a very valuable feature of a corn-sheller?

A. I do; and when we commenced the manufacture of these corn-shellers, after investigating the Patent Office thoroughly, we decided that we would be obliged to pay Mr. Eby a royalty and immediately made a contract with him, as we did not believe that we could compete with the shellers in the market successfully without such a device.

Q. 8. Do you know how extensively this device has been used on corn-shellers by other manufacturers?

A. I cannot say exactly as regard that, although I have been informed by quite a number of manufacturers that they were paying royalty to Mr. Eby.

143 Q. 9. Can you state whether it has been generally adopted by manufacturers of corn-shellers?

A. I think it has been quite generally adopted by manufacturers of successful corn-shellers.

Q. 10. Do you know whether it has been adopted quite generally among large manufacturers?

A. I think it has, and I don't believe that a manufacturer could successfully put a sheller on the market that did not have this device, or one similar in construction.

Q. 11. During the time that you have been engaged in this business, Mr. Whitman, have you given the matter a good deal of personal atttention?

A. I have given it a good deal of personal attention.

Q. 12. You are, then, as I understand you, a very active member of the Whitman Agricultural Co. and know personally a great deal of what has been going on among the manufacturers in that line for the last ten or a dozen years?

A. I have been president of the Whitman Agricultural Co. since its organization and have had full charge of all matters relating to patents and the introduction of machinery.

Q. 13. Can you state whether manufacturers in your line generally acquiesce in the validity of Mr. Eby's patent sued upon in this

cause or whether as a rule they ignore it and refuse to pay him the royalty?

A. In answer to that question I would state that before we decided what to do in the matter as regards his cob-stackers I had various conversations with manufacturers of shellers, and after investigating the patents in Washington and talking with these manufacturers all seemed to agree that the Eby patent was
144 a strong and valid one, and, with others, made a contract with Mr. Eby to manufacture his stacker under a royalty.

CHAS. E. WHITMAN.

I, Walter C. Carr, a notary public in and for the city of St. Louis, State of Missouri, hereby certify that the foregoing deposition of Charles E. Whitman, a witness on behalf of the complainant in the suit of Henry H. Eby *vs.* Solomon E. King *et al.*, now pending in the United States circuit court for the northern district of Illinois, was duly taken by me, pursuant to the notice hereto attached, at the office of Knight Brothers, corner of Broadway and Olive street, St. Louis, Missouri, commencing at 2 o'clock in the afternoon of the 9th day of November, 1885, and ending the same day; that the witness was first duly sworn by me.

And I further certify that the fees for taking this deposition, amounting to $5.00, have been paid by the complainant.

WALTER C. CARR,
[NOTARIAL SEAL.] *Notary Public.*

(Endorsed:) Filed Nov. 17, 1885. Wm. H. Bradley, clerk.

145 *Testimony of William M. Eby, Taken June* 4, 1885, *Before R. F. Jackson, a Notary Public, at Odell, Nebraska.*

Q. 1. What is your name, age, occupation, and place of residence?

A. William M. Eby; I am thirty-eight years old; am a farmer; my place of residence is Odell, Gage county, Nebraska.

Q. 2. Do you know Henry H. Eby, the complainant in this cause; if so, how long have you known him? Are you a relative of said Eby; if so, what relation do you bear to him?

A. Yes; I have known him ever since I can remember anything. Yes; I am his nephew.

Q. 3. Do you remember making or assisting said Henry H. Eby to make a Patent Office model of a cob-carrier for corn-shellers some time in the year 1872 or thereabouts? If you answer yes, particularly and in detail describe such model.

A. Yes; I do. The object of the invention was to deliver corn-cobs from a power corn-sheller either up and down or sideways without stopping the motion, the carrier being hung on the inner end of the revolving block and vertical shaft through block and plate. This hook did rest upon a plate connecting cross-pieces, and was held in place by bolt-hooks, and the whole stacker rested upon said plate. The power was applied by a pulley at the lower end of the shaft.

Q. 4. State when you made or assisted said Eby to make such model, where the same was made, and why and at whose request you made said model, and what was said to you, if anything, by said Henry H. Eby at or about the time you undertook to make or assist in making said model.

A. It was in the year 1872. I assisted Eby to make model. It was made in Mendota, Ills. Eby wanted to have his inven-
146 tion patented. I made it at Henry Eby's request. I don't remember anything particular that Eby said, except that he wanted me to make model.

Q. 5. Look at the Patent Office copy now shown you, marked "Complainant's Exhibit William M. Eby's Copy No. 1," of the drawings and specifications of reissued letters patent numbered 7851, dated August 21st, 1877, granted to Henry H. Eby, for an improvement in cob-carriers for corn-shellers, and state whether or not you understand the description and drawings therein contained and whether or not the same correctly describes and represents the model for cob-carrier that you made or assisted said Henry H Eby to make some time in the year 1872.

A. I understand them, and it describes the model I assisted Henry H. Eby to make.

Q. 6. If you answer the fifth interrogatory affirmatively, then direct your attention to the language of the specification of said patent in the first column of the first page thereof, which reads as follows: "This block may rest upon a plate or support, *b*, connecting the cross-pieces *a a'*" * * * "A vertical shaft, C, passes loosely through the plate *b* to the centre of the block B," and also refer to the drawings accompanying the specification and state whether or not there was in said original model before referred to by you a plate or support connecting the cross-pieces represented by *a a* in the drawings and through which plate the vertical shaft of the machine passes loosely.

A. I have looked at the specification and drawings and say there was such a plate.

Q. 7. If you answer the sixth interrogatory affirmatively, then describe minutely the plate or support referred to. State of
147 what material the same was made and how large the same was.

A. It was a metal plate about one inch long and one-half inch wide, one three-sixteenths hole in centre and one screw-hole in each end to hold on frame.

Q. 8. If you say that the said plate was made of metal, then state of what kind of metal the same was made, and state whether or not you have the piece of metal out of which the said plate or support was cut, and, if you have the same, please have the officer taking this deposition properly mark the same and send the same with this deposition.

A. It was made of brass. I have the piece out of which plate was cut and hand it to the officer taking this deposition, and have it marked No. one. I have also another piece which was made for the plate, and I thought it was not strong enough for the purpose

and so made another, heavier, out of piece marked No. one. This piece I also hand to the officer and have it marked No. two.

Q. 9. State at what time in the year 1872 the model in question was completed, if you know.

A. I cannot swear positively.

Lastly. Do you know of any other matter or thing of benefit or advantage to the complainant in this case, touching the matters in controversy in this cause, in addition to what you have already stated? If yea, state the same as fully as if thereto particularly interrogated.

A. I don't know of anything now.

WILLIAM M. EBY.

(Endorsed:) Filed June 10, 1885. Wm. H. Bradley, clerk.

148 *Defendants' Testimony.*

OTTAWA, ILL., *June 5th*, 1883.

Present: H. H. Eby, the complainant; Jesse Cox, Jr., solicitor for complainant; John H. Gilman, one of the defendants; Lorenzo Leland, solicitor for defendants.

Before Horace Hull, a notary public.

JOHN H. GILMAN, a witness for the defendants, being first duly sworn, testified as follows:

Q. 1. State your name, age, and place of residence.

A. John H. Gilman; age, 43 years; Ottawa, Ills.

Q. 2. Are you one of the defendants in this suit?

A. I am.

Q. 3. What is your business?

A. I am the superintendent of the mechanical department of King and Hamilton Manufacguring Company.

Q. 4. How long have you been engaged in the manufacture of agricultural implements?

A. About twenty-five years.

Q. 5. What portion of defendants' business have you attended to?

A. Superintending manufacturing.

Q. 6. State whether you have given your actual personal attention to manufacturing done in defendants' shop.

A. I have.

Q. 7. How long?

149 A. Since the firm of King, Hamilton & Co. have been in existence.

Q. 8. About how many years?

A. Since September, 1875.

Q. 9. What was your position before that time?

A. I was acting as superintendent for the firm of King & Hamilton.

Q. 10. How long have you been superintendent of the shop wherein were manufactured agricultural implements?

A. I think I began there in 1868 and have been there ever since

as superintendent. Before that time I worked in the shop—since 1861.

Q. 11. Have you examined the model now shown you, marked complainant's model Exhibit "King, Hamilton & Co.'s Device," and have you read the evidence of James Lucas on the part of the complainant in reference to that model?

A. I have read the evidence and examined the model.

Q. 12. You may state whether the defendants ever manufactured a cob-stacker such as described by that evidence in connection with that model.

A. They did.

Q. 13. Who conceived, planned, and made this machine for your firm?

A. I did.

Q. 14. When did you first manufacture it?

A. I believe it was in the summer of 1872.

Q. 15. Had you at that time seen or heard of the cob-stacker of complainant?

A. I had not.

Q. 16. Had you at that time ever seen or did you know of any cob-stacker made by any one the same or substantially the
150 same as this one manufactured by you?

A. I had not.

Complainant's counsel objects to questions Nos. 13, 14, 15, and 16 and the answers thereto as immaterial and irrelevant and relating to matters not put in issue by the pleadings.

The defendants' solicitor offered in evidence "Defendants' Exhibit Complainant's Original Patent;" also "Defendants' Exhibit Provisional Specification of George Thornton for Improvements in Straw-elevators;" also "Defendants' Exhibit Cyprian U. Crandall Patent;" also "Defendants' Exhibit Henry Brinsmead's Patent;" also "Defendants' Exhibit Richard Bryan's Patent;" also "Defendants' Exhibit A. B. Nimbs' and John C. Clifford's Patent."

Q. 17. Have you examined and are you familiar with "Defendants' Exhibit Provisional Specifications of George Thornton for Improvements in Straw-elevators"?

A. I have and am.

Q. 18. You may state whether a straw-elevator or cob-carrier made in accordance with those specifications would be capable of acting continuously; whether the carrying frame was fixed in position or was being swung to a new position.

A. It would.

Q. 19. You may state whether in a straw-elevator or cob-stacker made in accordance with those specifications the trough or
151 carrying frame could be adjusted vertically and horizontally without stopping the operation of the endless belt.

A. It could.

Cross-examination:

X Q. 1. In speaking of this provisional specification of George Thornton what do you mean when you say that in a straw-elevator or cob-stacker made in accordance with that specification the trough or carrying frame could be adjusted vertically and horizontally without stopping the operation of the endless belt? What do you mean by the expression "adjusted vertically and horizontally"?

A. In the specification as described guide-pulleys or guides placed near the junction of the elevator with the machine. This will allow of the motion referred to.

X Q. 2. What I want to know is what motion you do refer to.

A. The operation of raising or lowering the outer end of the carrying frame and swinging it horizontally.

X Q. 3. By "horizontally" do you mean from one side to the other or laterally?

A. Yes.

X Q. 4. And also do you mean by vertically raising and lowering the trough in a vertical direction?

A. I do.

X Q. 5. In the machine described in this Thornton provisional specification do you understand that the endless driving cord
152 or belt drives the elevator from the outer end of it or from the end of it nearest the threshing machine?

A. From the outer end.

X Q. 6. Do you understand also or not that the endless driving cord or belt is itself moved or driven by pulleys on the threshing machine?

A. By pulleys or drum.

X Q. 7. Do you understand that the circular plate mentioned in this specification can be moved otherwise than on its own axis?

A. It could have a motion independent of its circular motion.

X Q. 8. What motion could it have other than such circular or revolving motion?

A. It could have a motion that would permit the stacker to raise or lower.

X Q. 9. Please tell us what that motion of the circular plate is which you have just referred to.

A. If attached rigidly to the carrier it could have this motion by reason of the plate being thin where it engages with the stud or by having a bell-mouth hole through the plate through which the stud passes. By bell-mouth hole I mean a tapering hole, which would fit the stud closer at the bottom than at the top or reverse.

X Q. 10. How would you get this motion by using a plate which is thin where it engages with the stud?

A. By reason of the plate not fitting perfectly tight to the stud the plate could work on the stud sufficient for practical purposes.

X Q. 11. In case such thin circular plate was used where
153 it engages with the stud or in case a bell-shaped hole were made in the plate thorugh which the stud would pass, then the extent to which the trough could be raised and lowered would

be limited, would it not, by the extent of the rocking motion of the circular plate?

A. It would if the trough was rigidly attached to the circular plate and no other provision made for raising and lowering.

X Q. 12. Do you find in this Thornton's provisional patent any language to indicate that the circular plate had any such tilting or rocking motion as you describe? If so, point it out.

A. It is indicated by describing the raising and lowering of the carrier by lengthening or shortening the props at the outer end.

X Q. 13. Please read the language you refer to from the specification itself.

A. "And the outer end is supported on two props, which can be lengthened or shortened to suit the elevation required."

X Q. 14. Is that all the language of the provisional specification you find indicating that the circular plate had such tilting or rocking motion?

A. Yes.

X Q. 15. Is the language which you have read all the language which you find in the provisional specification indicating the trough or elevator could be raised or lowered?

A. Yes; it is.

X Q. 16. Since the endless belt which conveys the straw is driven by a cord at its end remotest from the threshing machine, the outer end of the driving cord being passed around the pulley or
154 drum on the threshing machine, how could the end of the trough be lowered while in motion without lengthening the driving cord or belt?

A. By reason of having guides or guide-pulleys placed near the junction of the plate and stud, the driving cord passing around or under these pulleys or guides.

X Q. 17. Do you give it as your judgment that it would be possible in the Thornton device to lower the elevator trough while the machine is in motion from an angle of, say, 45° to an angle of 10° without tightening the endless belt by other means than such pulleys such as you have indicated?

A. I do.

X Q. 18. In that case would not the driving cord be slackened?

A. It would not.

X Q. 19. Do you find in the Thornton specification any description of any such guide-pulleys for the purpose of enabling the operator to raise and lower the elevating trough while the machine is in motion? If so, please point it out.

A. I find a description that would enable him to raise and lower it.

X Q. 20. Please read the language you refer to.

A. "The endless driving cord or belt being caused to pass round guide-pulleys or through guides placed near the point of junction of the elevator with the machine."

X Q. 21. Do you refer to the language in lines 4 and five in second page of said provisional specification?

A. Yes.

X Q. 22. In such cases as you speak of, if guide-pulleys were used in the Thornton machine to obviate the necessity of tightening the driving cord when the elevator trough should be lowered and lengthening it when the trough should be raised, would such guide-pulleys operate to produce such effect without regard to the extent to which the elevator trough should be raised or lowered?

155

A. It could be raised from a horizontal to a vertical position without seriously affecting the tension of the belt.

X Q. 23. Suppose the elevating trough was lowered below a horizontal position?

A. If the trough was lowered below a straight line drawn from the driving drum to the driving pulley on the outer end of the carrier and below the lower edge of the ground pulleys, then the belt would be lowered, the driving drum supposed to be located above the guide-pulleys. This use of guide-pulleys for changing the direction of motion is a common practice in mechanics.

X Q. 24. Please describe a guide-pulley.

A. A guide-pulley for a cord has its periphery grooved for the reception of the cord. A guide-pulley for a belt is simply a flat-faced pulley and is located outside the direct line between the driving and driven pulleys.

X Q. 25. Where would these guide-pulleys have to be placed on the Thornton device in order to operate successfully in permitting the elevator trough to be raised and lowered without altering the driving cord or belt?

A. As near as possible at the junction of the circular plate with the stud.

156 Redirect examination:

Q. 1. Have you examined and are you familiar with the "Defendants' Exhibit Henry Brinsmead's Patent"?

A. Yes.

Q. 2. You may state whether a straw-elevator made in accordance with that patent would have gearing applied at the inner end of the carrying frame and would be capable of acting continuously whether the carrying frame was fixed in position or being swung to a new position. I refer to the one illustrated on sheet one of said patent.

A. It would.

Q. 3. Could carrying frame be adjusted vertically and horizontally without stopping the operation of the endless belt?

A. It could.

Q. 4. You may describe in brief the cob-stacker which you have already stated to be the one manufactured by defendants.

A. Attached to the sheller is a box carrying an upright shaft driven from a horizontal shaft in the sheller by means of beveled gearing. Near the lower end of the upright shaft is a pulley which drives a beveled wheel mounted upon a stud, said stud attaching to a cast-iron arm, the inner end of which attaches to the box described. Above this beveled wheel is a curved arm, the upper ends of which are pivoted to the carrying frame or trough. This arm is extended

in disc shape to form a shed or cover for the beveled wheel mounted on said stud. The beveled wheel mounted on the lower car-
157 rier-shaft engages with and is driven by the beveled wheel on the stud. The wheel on carrier-shaft, through the medium of pulley, drives the carrier. The outer end of carrying trough is supported by props, which may be lengthened or shortened.

Q. 5. State whether or not the only purpose of the metal plate which covers the wheel which revolves on the stud is to keep the wheel clear.

A. It is, except so much of it as is necessary for the supporting arms of the carrier.

Recross-examination:

R. X Q. 1. Referring to this Brinsmead Exhibit Patent, the first sheet of the drawing thereof, is the bar *c c* movable or stationary?

A. It is stationary.

R. Q. X 2. The frame *a* is movable, is it not?

A. Yes.

R. X Q. 3. And the drums *e* are attached to the movable frame?

A. Yes.

R. Q. X 4. Now, the drum *e* is actuated by the pinion *f* which meshes with it?

A. Yes.

R X Q. 5. The spindle *k* which carries the pinion is connected with the spindle *j* by a universal joint, and the spindle *j* has a bear-
ing on the bar *l* on which it has a sliding motion?

158 A. Yes.

R. X Q. 6. Now, it is necessary, is it not, for the working of this machine that the spindle *j* should be always parallel with the crank spindle *h*?

A. Not absolutely parallel. That would depend somewhat on the character of the pulleys and belts used.

R. X Q. 7. What sort of pulleys are shown in this drawing?

A. Flat-faced or band pulleys.

R. Q. X 8. When flat-faced or band pulleys are used would it be necessary to have the spindle *j* and *h* parallel or not?

A. Not exactly parallel.

R. X Q. 9. They would have to be nearly parallel?

A. Yes; nearly parallel unless they turned one face.

R. Q. X 10. Even if a grooved pulley was used for the pulleys *g* and *i* the spindles *j* and *h* would have to be nearly parallel?

A. Yes; not very far out.

R. Q. X 11. Now, in moving the circular frame *a* to the right or left what other parts of the machine shown in figure 2 have also to be moved or adjusted?

A. There seems to be a bearing, letter *m*, that carries a box to support the shaft *k*, now the universal joint, and another box supported by the box *l*, capable of being moved along the bar and being clamped to it. In moving the carrier around, the box moving on the bar *l* would be loosened and kept parallel with *h* while the machine was being swung. The box on *k* immediately

above *m* has a projection on its under side fitting loosely into a hole in *m*. This prevents the movement of the shaft *j*
159 through the medium of the box *m*, box *l*, without the attention of the operator at the box *m*.

R. X Q. 12. In moving the frame considerably to the right or left is it or is it not necessary to move the stake *z* (from *p* and its connections, shown in figure 3)?

A. That would depend entirely upon length of the rope from *z* to spindle *s*. If it was a very long rope the movement would be considerable; if a very short rope the movement would be contracted.

R. X Q. 13. The rope *y* would have to be drawn tightly around the stake *z* in any event, would it not, whether long or short?

A. Yes; that rope takes the resistance off the carriers.

R. X Q. 14. In order to move the supporting frame of the outer end of the carrier it would be necessary to move the rope *y*?

A. Yes.

R. X Q. 15. How many men, in your opinion, would it take to move to the right or left and adjust this Brinsmead straw-carrier while the same was in operation?

A. Leaving out the element of weight and moving a little at a time, it could be done by one man, but to move it over any considerable distance it would require the services of two, the amount of movement depending on the character of the pulleys used to transmit the motion from *h* to *j*—that is, a grooved pulley or a very crown-faced pulley would allow considerable movement of the box on *l* before throwing off the belt. The shaft *j* would then be made parallel or as much out of parallelism in the opposite direction by carrying the carrier around in the direction desired, repeating this operation till the carrier is set in the desired position.

160 R. X Q. 16. How far can the circular frame *a* be moved on the brackets *b*?

A. I should not think above a fourth of a complete circle.

R. X Q. 17. How do you arrive at this conclusion?

A. From the general appearance of the drawing.

R. X Q. 18. Would you judge from this specification and drawing that the frame could be moved to the left (assuming the pinion *f* and spindle *k* to be in the position shown in the drawing, and assuming the opposite of the drawing to be the left) further than the distance between the pinion *f* and the extremity *g*, bracket *b*, nearest the pinion?

A. It would seem so from the drawing, but it would not if the bracket was made right.

R. X Q. 19. It is stated that letters *m* are two bearings in the movable frame *a b*, secured — the spindle *k* when required to drive the opposite drum. Under what circumstances would you judge that it would be necessary that the spindle *k* should be changed to drive the opposite drum?

A. It may be in this identical machine that the pinion in moving the frame in the direction of the pinion bracket *b* might interfere with the movement of the circle, but I see no mechanical

difficulty in the way of making a bracket that would make the change necessary, except, perhaps, to add to the durability of the machine by using at times the beveled wheel attached to the opposite drum.

R. X Q. 20. Do you think that the rope *y* passing around the stake *z* is the same rope which serves to elevate and lower the tubes *o* and the frame *p*?

161 A. No, I think not.

R. X Q. 21. What do you understand to be the object of the rope *y*?

A. It is—the object of the rope *y* is—to hold the framework *o* in the proper angle, at any desired angle.

R. X Q. 22. What is the object of varying the inclination of the tubes *n* and *o*?

A. It is to raise and lower the upper end of the carrier.

R. X Q. 23. This same object is also accomplished by raising and lowering the tubes by means of the rope *x*, is it not?

A. Yes; that is one of the ways. There are two ways of accomplishing the same object.

R. X Q. 24. Why, in your judgment, are both these means employed for the same purpose?

A. Because it would increase the vertical range of the carrier.

R. X Q. 25. I understand you to say, in moving the circular frame *a* from right to left or *vice versa*, it is necessary to adjust the spindle *j* in its box on the bar *l* in two ways, both by moving it along the bar *l* in its box and also moving the spindle through the box. Is my understanding correct?

A. The adjustment of the spindle through the box is accomplished automatically during the movement.

R. X Q. 26. You understand that the box holding the spindle *k*, situated nearest the universal joint, is movably or rigidly fixed to the bar which carries it?

A. It has a rotary motion in the bearing *m*. The bearing is rigid on the bar.

162 R. X Q. 27. In changing the spindle *j* and *k* and the pinion from one drum *e* to the other, would it be necessary to stop the machine?

A. Yes; it would.

R. X Q. 28. In moving the spindle *j* along the bar *l* would the spindle *j*, if in rapid motion, adjust itself automatically through the box, or would there be a tendency to bind the spindles in the box?

A. No; if properly lubricated there would not be a tendency to bind.

R. X Q. 29. Would it not be less trouble in moving the Brinsmead elevator from right to left to stop the machine than to move it while in motion, especially if there was only one man to move it and to adjust the parts at the same time?

A. I think it would.

R. X Q. 30. Referring again to the Thornton provisional specification, supposing guide-pulleys were put on this machine therein described for the purpose of enabling the operator to raise and lower

the elevating trough without altering the length of the driving cord, where would such guide-pulleys of necessity *to* located with respect to the drum of the threshing machine actuating the driving cord?

A. At any point below the drum, but to effect both the vertical and lateral motion of the carrier without seriously slacking or tightening the cord the drum should be located directly over the guide-pulleys, as far away from them vertically as possible.

(Signed) JOHN H. GILMAN.

Subscribed and sworn to before me this 5th day of June, 1883.

HORACE HULL,

[NOTARIAL SEAL.] *Notary Public.*

163 THOMAS E. MACKINLEY, a witness produced on the part of the defendants, being first duly sworn, testified as follows:

Q. 1. State your name, age, and place of residence.

A. 38; Ottawa, La Salle county, Illinois; Thomas E. MacKinley.

Q. 2. Have you ever seen a corn-sheller with a movable cob-carrier attached similar to the one represented by "Complainant's Model Exhibit King, Hamilton & Company's Device"? And, if yes, state when and where and under what circumstances.

Objected to on the ground of irrelevancy and incompetency and relating to matters not put in issue by the pleadings.

A. Well, I have seen a corn-sheller with a movable cob-stacker attached; but whether the mechanical construction was similar to this, I cannot say; it was exhibited by Allen Jordan at the fair in 1872 at this place.

Q. 3. What fair was that?

A. The State fair held here in 1872, somewhere in the middle of September—I think it was the 16th.

Q. 4. Do you know whether or not Allen Jordan exhibited that cob-stacker as employé of King & Hamilton?

A. I know that Allen Jordan was in King and Hamilton's employ.

Cross-examination waived.

THOMAS E. MACKINLEY.

Subscribed and sworn to before me this 5th day of June, A. D. 1883.

[SEAL.] HORACE HULL,
Notary Public.

(Endorsed:) Filed Jan'y 23, 1886. Wm. H. Bradley, clerk.

164 Testimony taken on the part of the defendants in the above-entitled cause, by agreement, before Charles H. Roberts, notary public, at his office, No. 180 South Clark street, Chicago, on February 3rd, 1885.

Present: Jesse Cox, Jr., Esq., solicitor for complainant, and Lorenzo Leland, Esq., solicitor for defendants.

And thereupon counsel for defendants offered in evidence certified copy of the contents of the file-wrapper in the matter of the application of the complainant for reissued patent No. 7851, being the patent sued on in this case, and the same is marked "Defendants' Exhibit Eby's File-wrapper."

Also certified copy U. S. letters patent No. 480, of date Nov. 23rd, 1837, granted M. Davenport for improvement in grain thresher and cleaner, and the same is marked "Defendants' Exhibit Davenport Patent."

Also U. S. letters patent No. 2266, granted September 25, 1841, to P. Reading for improvements in corn-shellers, and the same is marked "Defendants' Exhibit Reading Patent."

Also original patent to complainant of date January 14, 1873, No. 134,790, being the original of the patent sued on, and the same is marked "Defendants' Exhibit Eby's Original Patent."

165 *Testimony of Cyrus Kehr,*

a witness for defendants, who, being first duly sworn, testified as follows, to wit:

Q. 1. Please give your age, name, residence, and occupation.

A. Age, 28; name, Cyrus Kehr; residence, Chicago, Illinois; occupation, solicitor of patents and mechanical expert.

Q. 2. To what extent, if at all, are you familiar with mechanics and the investigation and construction of letters patent, and what opportunities or experiences, if any, have you had in that behalf?

A. During the past several years I have devoted myself to the study of patent law and mechanics and to the work of soliciting patents. During that time I have had occasion to study a large variety of mechanical constructions and to study numerous patents for inventions with a view to this interpretation, and during that time I have testified as a mechanical expert in patent suits.

Q. 3. Have you examined and are you acquainted with the models and paper exhibits (including letters patent) in evidence in this case?

A. I have and am.

Q. 4. Please institute a comparison between the invention disclosed in the original letters patent to complainant, dated Jan. 14, 1873, and the patent exhibits of a prior date in evidence, giving your reasons for any opinion you may advance in reference to the prior state of the art and the effect thereof upon complainant's said original patent.

166 A. Said original patent shows a cob-carrier for a corn-sheller placed at the rear end of the sheller to convey the cobs from the machine upwards into a wagon or other receptacle or to deposit them in a pile upon the ground. The carrier itself is of a familiar form, in which a continuous belt or belts carry cross-slats or buckets. At its outer end it is supported on hinged or pivoted legs. At its inner end it rests upon a circular plate or turn-table,

which latter is held in position upon the frame of the sheller by clamps or hook-bolts. These clamps or hook-bolts may be loosened to allow a partial rotation of the circular plate or turn-table, thus causing the outer end of the carrier to describe the arc of a horizontal circle. When such change has been made these clamps or hook-bolts may again be tightened to prevent further movement of the turn-table. The carrier is hinged upon the turn-table in such manner as to allow its outer end to move up or down in a vertical plane.

In the centre of the turn-table is seated a short vertical shaft, having a horizontal pulley at the lower end and an inverted beveled gear wheel at the upper end, which meshes into a corresponding bevel wheel on the inner end of a short horizontal shaft mounted in a box on one side of the turn-table. The outer end of this latter shaft supports a spur wheel, which meshes into a corresponding spur wheel mounted on one end of the shaft of the lower roller supporting the carrier-belt, a belt or chain being applied to the pulley from some other part of the machine.

In the Exhibit "Davenport Patent" (bearing date 1837) I
167 find a grain-thresher having a carrier with endless belts and cross-slats similar to those in complainant's original patent, and said carrier-belt is driven from its inner end, a band, M, passing over a pulley, K, for this purpose. This carrier-frame is not adjustable.

In the Exhibit "Reading Patent" (bearing date 1841) is described a corn-sheller having a carrier with the endless belt and slats, and said carrier-belt is driven from its inner end, a band, N, passing over a pulley, M, mounted on the shaft of the lower roller of the carrier for this purpose. This carrier does not appear to be adjustable either vertically or laterally.

The Exhibit "Brinsmead Patent" (or English patent of date 1861) shows two threshing-machine carriers. The first, illustrated on sheet 1 of the drawings, is a carrier which may be moved both laterally and vertically, like complainant's. The outer end of said carrier is supported by two upright pivoted legs, joined at their upper and lower ends to make a sort of frame, and the position of such frame may be changed to change the position of the outer end of the carrier. This drawing shows a carrier-belt suspended without the usual frame or trough. One end is supported on wheels or pulleys mounted on supporting legs, and the other on wheels supported on the rear end of the machine. This frameless carrier is used in this case for the purpose of making it portable. A rigid frame might equally well be used with the rest of the apparatus described. The inner end of this carrier is supported by a circular frame, *a*, having a sliding motion in two brackets, *b b*, fixed
168 to the framework of the threshing machine. Outside of and concentric with this movable frame *a* is fixed a bar, *c*, and a bar, *d*, projects from the circumference of the frame *a* to the bar *c* and is adjustably secured to the latter by a set-screw. This then allows the circular frame *a* to be rotated, being guided during such rotation by the brackets *b b* and the set-screw before mentioned.

The carrier-belt is driven by gear applied to one of the wheels at the lower end of the belt, said gearing being mounted on one end of the circular frame small *a*. In this machine, then, we have a carrier which is adjustable both vertically and horizontally, as is shown by complainant's original patent. The inner end of the carrier is supported on a turn-table, as shown in complainant's original patent. The carrier-belt is driven from the inner end, as shown by complainant, the mechanism used being a belt, pulley, shaft, and gear wheels, said pulley, shaft, and gear wheels mounted on the turn-table. The difference between these machines *are* slight. Complainant's gearing differs some in arrangement from the English machine, and his carrier, instead of being attached directly to the turn-table, as in the English machine, is supported on arms *e e*, the latter being fixed upon the turn-table. There is also a slight difference in the devices for securing and guiding the turn-table. In the complainant's machine the turn-table is guided and secured by the hook-bolts *m*, while in the English machine the turn-*at*ble is guided by the brackets *b b* and secured by the screw on the arm *d*.

On sheet 2 of said English patent is shown a machine having a carrier composed of the usual frame and endless carrier-
169 belt, the inner end of which is hinged by a yoke to a bracket, *b*, which latter is sleeved on a vertical shaft, thus permitting a vertical and lateral motion of the outer end of the carrier. The outer end of the carrier is supported by a rope extending over the upper end of the post J, mounted upon the rear end of the machine. The carrier-belt is driven by pulley, shaft, and gear wheels like those shown on sheet 1. The complainant's turn-table is not shown in this drawing, the result obtained thereby being secured by the yoke and hinged bracket *b*.

The Exhibit "Nimbs Patent" describes a floating grain-elevator in which appears a grain-carrier having an endless belt provided with buckets for lifting grain into bins or elsewhere. This carrier is hinged between two posts, G G, which latter are supported upon a turn-table, D, thus permitting the outer end of the carrier to be moved in either direction. The turn-table D is secured against movement by clamps o^3 o^3. Through the centre of the turn-table passes a vertical shaft supporting a spur wheel, which meshes into another spur wheel on another vertical shaft, and from the latter connection is made through a short horizontal shaft, pulleys, and belt with the carrier-belt. This short horizontal shaft and its connections are mounted on one side of the turn-table. Comparing this patent with the complainant's original, we have in each a carrier whose inner end is supported on a turn-table held in position by clamps. For complainant's supporting arms we have in the Nimbs patent the posts G G, and for the hinge at the upper end of complainant's arms *e e* we have in the Nimbs patent the hinge at the upper end of the carrier. In both patents the outer end of
170 the carrier may be swung in either direction. In both patents the carrier-belt is driven by a gearing applied at the inner end of the said carrier, and in both machines said gearing is mounted on one side of the turn-table. I do not fail to notice that complain-

ant's carrier is not vertically adjustable at its inner end, as is the case with the Nimbs machine, but this is not a material difference. There is also a slight difference in the arrangement of the parts of the gearing for running the carrier-belt, but I regard this as unimportant.

The Exhibit "Crandall Patent" describes a corn-harvester which swings laterally upon a vertical post or shaft, *h*. This, however, appears to have no vertical movement, and it is driven by gearing applied to the upper end of the carrier.

In the English provisional specification of George Thornton, deposited in 1868, I find a description of a straw-elevator mounted on a circular plate and stud in such manner as to allow it to stand in line with a threshing machine or at an angle thereto, and the elevation of the outer end of the carrier may be varied by changing the position or length of two props or legs. The elevator belt is driven from the upper end of the carrier by a belt or cord which is deflected by guide-pulleys placed near the point of junction of the elevator with the machine. This machine corresponds with the one described in the complainant's original patent in the following particulars: Both have a carrier, the outer end of which may be swung vertically and horizontally; both support the outer end of
171 the carrier on props or legs; both support the inner end of the carrier on a circular plate.

The Exhibit "Bryan Patent" shows a straw-carrier which is movable vertically and horizontally at its outer end. Its inner end is supported on a yoke hinged upon a vertical shaft. The outer end of the carrier is supported by a chain attached to the upper part of the rear end of the machine. The similarity between the device and the complainant's original device consists in the fact that both carriers have the universal movement at the outer end.

The effect of these prior patents upon the interpretation of the complainant's original patent is quite important. It will be seen that complainant's result has been accomplished by several of these prior inventors. All of them used a portion of complainant's construction and a portion of them *and* all the elements in almost the identical arrangement. The only differences to be found between complainant's original patent and the prior patents under consideration are specific differences, and complainant's original patent must therefore be understood to be for strictly specific combinations. In view of these prior devices *is* is even questionable whether complainant was entitled to any patent at all.

Q. 5. Please institute a comparison between defendants' machine as shown in Exhibit "King, Hamilton & Co.'s Device" and complainant's original patent in reference to the inquiry as to whether defendants' machine would have been an infringement of the
172 claims of said original patent, giving your reasons for your judgment or conclusions in that behalf.

A. Claim one in said patent reads as follows: "The combination of the block *b*, adapted to revolve, and the hook-bolts *e e* for supporting a carrier, as described."

The Exhibit "King, Hamilton & Co.'s Device" does not show the

hook-bolts referred to nor any element which performs their office; neither does it show a block or turn-table resting by its margins upon the frame of the machine. Said exhibit does not show a plate or block supporting the gearing which drives the elevator belt. The combination specified in said first claim is therefore not present in said exhibit.

Claim 2 in said patent reads as follows:

"The combination of the block *b* and the central vertical shaft and its connections, substantially as described."

By this combination I understand is meant the block or turn-table *b* seated upon the frame of the machine, as described, and supporting at its centre the vertical rotary shaft with a bevel gear at its upper end, which latter meshes into the gear supported by a short horizontal shaft seated on one side of the turn-table, said horizontal shaft communicating with the lower shaft or roller of the carrier by means of a pair of spur wheels. In view of the prior patents I cannot regard this claim as meaning more than above stated, and in view of the Nimbs and Brinsmead patents I doubt whether it should cover even this much. With this construction of the second claim it will be seen that the Exhibit "King, Hamilton & Co.'s
173 Device" does not embody the subject-matter of said second claim. Said exhibit shows no gearing which is equivalent to the gearing constituting the connections of the vertical shaft mentioned in said second claim. Indeed, said exhibit does not show a turn-table at all, but merely a pivoted yoke or bolster. This bolster is circular in the model, but it is supported at its centre only, so that the margins are useless for the purpose of seating and securing said bolster. I can conceive of only one reason why this yoke or bolster should be widened into a circular plate, and that is to cause it to serve as a cover or guard for the bevel-gear wheel beneath it; but for this the yoke might be a narrow bar bent upward at each end to form the attachment for the shaft of the lower roller of the carrier.

Claim 3 is for a combination containing so many elements that it is easy to see that said combination is not present in the model under consideration.

Q. 6. Have you made any comparison between the patent sued on in this case and the original patent, of which the former is a reissue, and if you have prepared any paper showing the specifications of said original and reissued patents in condition for comparison, will you please produce the same?

A. I have made such comparison and have arranged said specifications in two columns, the first column containing the original specification and the second the reissued specification, the paragraphs relating to the same matters being placed opposite each other so far as could be. On said paper I have written certain references in brackets ( ). I now hold said paper in my hand.

174 (The paper referred to offered in evidence by defendants and marked "Defendants' Exhibit Comparison of Complainant's Original and Reissued Specifications.")

(The introduction of this exhibit objected to by complainant's counsel.)

Q. 7. Please institute a comparison between the two patents above referred to and state the character and scope of the differences between them, if any, with special reference to the respective claims.

A. I find the drawings in the reissued patent to be more elaborate than in the original, and I find the specification in the reissue considerably longer than in the original.

By examination of section two of the two specifications as arranged in "Defendants' Exhibit Comparison of Complainant's Original and Reissued Specifications," it will appear that the patentee introduced new matter in the following words of the reissue: "which is adapted to be adjusted both vertically and horizontally upon its supporting frame and driving mechanism without interfering with or stopping its operation." This feature is neither mentioned nor suggested in the original.

In section 5 of said exhibit, in the reissue, appears a reference to a "plate or support *b*." Said plate is described as supporting the turn-table and as having the central shaft C passing through it. Said plate *b* is also shown in the reissue drawings, while no reference is made to it in the original nor is it shown in the original drawings, the rotating block in the original being supported only on the cross-timbers of the frame of the sheller and held and guided by the hook-bolts.

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In section 7 of the reissue I find the rollers of the carrier-frame lettered E^1 E^2, while in the original they are not lettered.

In the same section I find a description of hangers, F^2 F^3, inserted as new description, and said hangers are not lettered in the original drawings.

In section 9 of the reissue is a statement that the inner end of the carrier is pivoted in line with the lower roller of the carrier, in order to allow the turning of the carrier without throwing the cog wheels D^2 and E^3 out of gear. In the original there is no reference to this arrangement and no intimation that it is desirable or essential.

In section 13 of the reissue reference is again made to the change of position of the carrier "without stopping the operation of the endless belt."

I have already given my interpretation of the original claims. Claim 1 of the reissue is broadly for a supporting and revolving block, a carrier whose inner end is supported on said block and whose outer end is supported upon movable legs, and gearing applied at the inner end of the carrier, capable of acting continuously, whether the carrier is fixed or being swung. It is easy to see that the terms of this claim are much more comprehensive than those of either of the original claims and will cover a variety of constructions which said original claims do not cover. The second reissue claim is for about the same elements, with the addition of the central vertical shaft with its connections.

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Q. 8. In view of the prior art as disclosed in the evidence, what is

your judgment as to the validity of said reissued claims, considered without reference to their being an expansion of the original claims?

(Objected to by complainant's counsel as calling for the opinion of the witness on a question of law.)

A. The reissue claims comprise matters which are shown in the prior patents introduced in evidence. The only result which complainant claims as original with him is the carrier, which may be swung horizontally or vertically without interrupting the action of the carrier-belt. This result appears, in my judgment, in the Brinsmead patent, already referred to, and in the Nimbs patent, referred to. I can see no reason why the belts in the machines described in said patents cannot be run continuously while the carrier is being shifted.

In the Nimbs patent provision is made by a tightening pulley for the automatic adjustment of the belt which propels the carrier-belt, and in the Brinsmead patent the pulley-bearing shaft *j* may be shifted to its new position while the carrier is being shifted.

177 Cross-examination by JESSE COX, JR.:

X Q. 1. Referring to the complainant's model Exhibit "King, Hamilton & Co.'s Device," upon what does the inner end of the carrying frame rest?

A. It rests upon a short vertical non-rotating post or shaft.

X Q. 2. To what are the arms supporting the inner end of the carrying frame in said model directly attached?

A. To a circular plate having a downwardly directed flange about its circumference and a vertical hole and sleeve at its center.

X Q. 3. It is this circular plate to which you have just referred to which rests upon the top of the fixed post or shaft through the sleeve you have referred to, is it not?

A. Yes.

X Q. 4. Then the inner end of the carrying frame does not rest directly upon the post or shaft, but upon arms which rest upon the circular plate, which in turn rests upon the fixed shaft?

A. The inner end of the carrier does not rest directly upon the non-rotating shaft mentioned, but the plates and arms mentioned in the question are interposed between said post and the end of the carrier. This plate and arms act together, however, in the capacity of a yoke or bolster, the circular plate as such performing no part in supporting the carrier farther than to hold the arms and center—that is to say, the halves of the plate on each side of the arms do no supporting, but act merely as a guard or cover for the
178 gear wheel beneath.

X Q. 5. The inner end of the carrier is hinged to the arms, is it not?

A. It is.

X Q. 6. And this hinge enables the operator to move the outer end of the carrier in a vertical direction, so that the carrier may be changed from a position of, say, about fifteen degrees below the hori-

zontal position to a position in which the carrier and frame will be nearly vertical, does it not?

A. It does.

X Q. 7. The use of the circular plate, or, as you have called it, bolster, in the connection in which it is used in the model "King, Hamilton & Co.'s device," enables the operator to move the carrying trough about three-fourths of a circle, does it not?

A. Yes.

X Q. 8. In the model marked Exhibit "Eby" the carrying trough is capable of being moved vertically and laterally about the same distance as the trough in the model "King, Hamilton & Co.'s device," is it not?

A. Yes.

X Q. 9. The inner end of the carrying trough in the model marked "Eby" is hinged to the arms in substantially the same manner, mechanically, as the trough in the model "King, Hamilton & Co.'s device," is it not?

A. In the model marked "Eby" the arms mounted on the turntable are hinged to or inserted into eyes in the lower end of arms attached to the carrier, while in the other carrier, the other
179 model, the axle of the lower roller of the carrier is prolonged at each end to receive the supporting arms. This latter method is more simple and has the advantage of insuring accuracy in bringing the hinge in line with the centre of said roller.

X Q. 10. In both cases, however, there are supporting arms in which the inner end of the carrier is hinged, are there not?

A. Yes.

X Q. 11. And it is this hinge which permits the vertical motion of the carrying trough, is it not?

A. Yes.

X Q. 12. The difference in the character of the hinge which you have a-verted to does not in any manner alter or affect the character of the hinge, except as stated in your answer to cross-question nine, does it?

A. No; if the Eby hinge is made sufficiently strong and with sufficient accuracy, there will be no material difference in operation.

X Q. 13. The fact that these arms, both in the Eby model and in defendants' device (I will hereafter call the model marked "King, Hamilton & Co.'s device" the "defendants' device"), rest upon something which is capable of revolution upon a central axis is what enables the operator to move the respective carrying troughs in a lateral direction, is it not?

A. The fact that the arms in both cases rest on something which may be rotated enables the operator to move the carrying trough in a lateral direction. I wish, however, to call attention to the fact that this answer applies to the models only. The question
180 assumes that both supports turn upon a central axis, while the complainant's original patent describes the circular block as being guided and secured at its circumference by the hook-bolts *m m*, and the reissue also speaks of said circular plate as being guided and secured at its margin or circumference by the hook-

bolts, while it also shows a rectangular stationary plate or board beneath the *the* turn-table through which the vertical shaft passes. Whether the hole in this board through which the shaft passes is to be made small enough to stay said shaft, the reissue does not state; or, in other words, said reissue states definitely that the turn-table is guided and held by the hook-bolts, while it is not intimated that anything else is contemplated. In the Eby model, however, the vertical shaft is so firmly seated in the stationary board or plate that the turn-table will retain its position without the aid of the hook-bolts.

(All of this answer after the words "lateral direction" is objected to as irresponsive to the question.)

X Q. 14. In both the models marked "Eby" and the model "defendants' device" the power is communicated to the endless belt from a point below the plate, bolster, or block upon which rest the arms supporting the inner end of the carrier. Is this not true?

A. Yes.

X Q. 15. In both cases the power which drives the endless belt is communicated from the corn-sheller by means of a belt passing over a pulley located on the carrier directly below the roller at the inner end of the carrying frame, which pulley drives a gear
181 wheel which communicates motion directly or indirectly to the roller at the inner end of the carrying frame. Is not this true?

A. Yes.

X Q. 16. You have spoken of hook-bolts as that term is used in the original patent granted to Eby. Will you please state how often and where in said original patent the term "hook-bolts" is used and when it is used, by what letters it is referred to in the patent and drawing?

A. I find the term "hook-bolt" used twice in said original specification, and it is referred to by the letters *e e*. It appears first at the end of the third paragraph, preceding the claims, and second in claim 1.

X Q. 17. Is the defendants' carrier capable of acting continuously whether the carrying frame is fixed in position or being swung to a new position, and can the carrying frame of the defendants' device as shown in the model be adjusted vertically and horizontally without stopping the operation of the endless belt?

A. Yes.

X Q. 18. Do you give it as your opinion that if the gear wheel upon the upright central vertical shaft of the model marked "Eby" were enlarged to such an extent that it would mesh with the gear wheel at the side of and at the inner end of the carrying frame and which is attached to the roller at the inner end of the carrying frame, and both these wheels were suitably beveled so as to mesh together, dispensing with the other two gear wheels shown in the Eby model, that such construction would not be a mere mechanical substitute or equivalent for the construction now shown in said model?

182 A. A large variety of devices might be substituted for the gear and shafting mounted on Eby's turn-table, as shown by the model. In a certa-n sense all these devices would be mechanical equivalents, but under certain circumstances a device may be an equivalent, while it is not under different circumstances. Whether the devices mentioned in the question would be equivalents must be determined by reference to the patent of which this model is a representation and to the prior art. If this patentee be found to be a pioneer in his line of invention, we must make a broad interpretation of equivalents, but if he be not found a pioneer in his line of invention and it be found that a variety of devices similar to his has preceded him, we must make a narrow or restricted interpretation.

X Q. 19. The question did not refer to the complainant's patent, either original or reissue, nor to the state of the prior art, nor whether complainant is entitled to hold equivalents or mechanical substitutes under the claims of his patent. The question is simply whether the construction supposed in cross-question 18 would not be a mere mechanical substitute or equivalent for the construction shown in the model marked "Eby." The answer to this question is one of mere mechanics and has no connection whatever with the patents. I will therefore ask that it be re-read to the witness, and that he give a direct answer to the same.

A. The supposed construction would be a generic substitute or equivalent for the construction shown in the Eby model, but it would not be a specific substitute or equivalent.

183 X Q. 20. What do you mean by a "generic" substitute or equivalent, and what do you mean by a "specific" substitute or equivalent?

A. By a "generic" substitute or equivalent I mean one of several devices or combination of devices which may in some cases be used for the same purpose; for example, if we wish to exert pressure we may do so by a spring, weighted lever, screw, cams, &c., if the conditions happens to be favorable for the use of each; but in some case, perhaps, only one of these means would answer the purpose. All these devices constitute a genus, of which — is a species. Any device which will in a general way perform the functions of the genus is a generic equivalent for the several devices of the genus, and if any two individual devices perform the same function in the same or almost the same manner they are specific equivalents. The distinction between generic and specific equivalents is in some cases a matter of degree. By this I mean that the genus may be broad and comprehensive or it may be limited.

X Q. 21. Do you mean to say that one device is a generic equivalent of another, if both produce the same result, without reference to the mechanical means by which the result is effected?

A. I do.

X Q. 22. Applying, then, this distinction as you have given it to the hypothesis contained in cross-question 18, do you mean to state, by the answers you have given to cross-questions 18 and 19, that the same result is accomplished by the supposed construction con-

tained in said 18th cross-question and the construction shown in the Eby model, but that the mechanical means are different?

184 A. Considering the whole of the Eby device as shown by the model and comparing it with the supposed construction set forth in cross-question 18, the same result is reached by the two devices, but it is quite apparent that there is a difference in the mechanical means.

X Q. 22½. Is this difference between the mechanical means employed in the device supposed by cross-question 18 and that employed in the device represented by the Eby model a generic or specific difference?

A. It is a specific difference.

X Q. 23. Then it is not a fact that the device supposed in cross-question 18 and the device represented by the Eby model produce the same result by the same generic mechanical means?

A. It is.

X Q. 24. The terms "generic" and "specific," as applied to mechanical means, are relative terms, are they not?

A. They are.

X Q. 25. And the propriety of their use depends upon the nature of the case in question, does it not?

A. It does. If the complainants in a case claim a broad construction of a narrow and defective patent it may be necessary to use these terms.

(All the answer after the word "does" is objected to by counsel for complainant as being irresponsive.)

X Q. 26. What are the generic mechanical means employed in the device represented by the model marked "Eby" for the purpose of communicating the power received from the corn-sheller to the endless belt?

185 A. A shaft placed beneath or near the lower end of the carrier and connected with the lower shaft of the carrier-belt by gear in such manner as to permit the universal movement of the outer end of the carrier without stopping the operation of the carrier.

X Q. 27. Referring to the Nimbs patent, do you consider that there is any difference between the devices shown in that patent for communicating power to the pulley belt which drives the elevator belt upon which the buckets are placed and the devices which are used in the machine represented by the model marked "Eby," for communicating the power to the endless belt of the carrier?

A. I find no material difference.

X Q. 28. Are there in each device referred to in cross-question 27 a turn-table, a central vertical shaft, and gear connections for driving the belt?

A. There are.

X Q. 29. Do you find in the specification and claims of the Nimbs patent any mention of a hinge for the elevator leg?

A. Yes.

X Q. 30. Please point out the language which you refer to.

A. The fourth paragraph on page 2 of the manuscript specification offered in evidence is as follows: "The leg is hung in a sliding frame F by the shaft e^2, which has its bearings in said frame." The next paragraph contains the following: "G are two upright posts firmly secured to the turn-table." The next paragraph contains the following: "The sliding frame F, with the elevator leg,
186 moves up and down between these posts." I understand from the foregoing language that the outer end of the elevator leg moves in a vertical plane with the inner end being hinged on the pulley shaft e^2. At the end of page 5 of said specification I find that the leg may be placed in any desired position.

X Q. 31. Is this all the language you find in the Nimbs patent, specification, and claims which indicates to your mind that there is a hinge to the elevator leg?

A. In paragraph three of page 2 I find the following: "E is the elevator leg constructed in the common manner." The common manner is to hinge elevators used for similar purposes. The inference therefore is that this is hinged. The last paragraph on page 2 states that the elevator leg is to enter the hatch of the vessel from which the grain is to be elevated. Since the hatch of a vessel is comparatively small, and vessels differ in width, it appears necessary that the outer end of the elevator leg be arranged to swing in order to reach the hatches of different vessels. These seem to be all the references made in the specification to the manner of hanging or supporting the inner end of the elevator leg.

X Q. 29. You say that you understand from the language of the Nimbs patent that the outer end of the elevator leg moves in a vertical plane. Do you mean by this that the outer end of the elevator leg moves in a vertical plane parallel with the vertical plane in which the inner end of the elevator leg moves when the leg is raised or lowered in the sliding frame between the posts G?

A. I do not.

187 X Q. 30. What do you mean?

A. The elevator leg has three movements, one of which is imparted by rotating the turn-table D, the other is imparted by sliding the vertically movable frame F, and the other by raising or lowering the outer end of the leg while its inner end remains stationary with reference to the horizontal shaft e^2. The last-named movement is the one I meant to describe in the previous answer.

X Q. 31. Now, isn't it a fact that in case of the movement last described the outer end of the elevator leg would move in a curved path?

A. Certainly.

X Q. 3. The spout p' is rigidly attached to this elevator leg, is it not?

A. It is.

X Q. 33. Now, if you are right in supposing that the Nimbs apparatus is so constructed that the outer end of the elevator leg may be moved in a curved path upward, is it not a fact that the result of such upward movement of the outer end of the elevator leg in

such a curved path would be to bring the mouth of the spout p' towards the posts G?

A. There would be such a movement of the mouth p', but on account of the short distance from said mouth to the shaft e^2 such movement would be comparatively slight.

X Q. 35. The extent of the movement of the mouth of the spout b' would depend upon the extent of the movement of the outer end of the elevator leg, would it not?

188 A. Yes. If the mouth p' were to move a few inches the lower end of the carrier-leg would have to move several feet, and as said elevator leg is to be used hanging downward the end p' would never move more than a few inches.

X Q. 36. Supposing that the outer end of the elevator leg (supposing it to be capable of movement at all) were elevated so far as to bring the *the* elevator leg to a horizontal position, would not the movement of the spout p' be brought by such movement to such a position as completely or nearly to close all access from the spout p' through the flexible pipe p^2 to the bin?

A. If the spout p' were made in the form and proportion indicated by the drawings the passage through the flexible tube p^2 would, I think, be closed, or nearly so, if the outer end of the leg were raised so as to place the leg in a horizontal position.

X Q. 37. Assuming that the outer end of the elevator leg of the Nimbs patent is moved in the curved path upward, as you have stated, would not the spout p' at the same time pass through the same number of degrees of a circle as the outer end of the elevator leg?

A. The end p' would move through the same number of degrees as the outer end, but it would not move the same number of inches or feet. While the outer end moved several feet the inner end would move only a few inches.

X Q. 38. Any movement of the spout p' towards the
189 upright posts G would have a tendency to lessen the space within the flexible pipe p^2 for the passage of the grain through it, would it not?

A. Not necessarily. If the lower end of the flexible pipe p^2 is nearer said posts than the upper end, then such movement of the pipe p' would not close or tend to close the flexible tube. In any case it would take a considerable movement of the outer end of the elevator leg to move the end p' far enough to close the flexible tube to such an extent as to interfere with the operation of the machine.

X Q. 39. Do you find any statement in the Nimbs patent that the lower end of this flexible pipe p^2 stands any nearer the posts G than the upper end?

A. I do not. Such a construction would in most cases be unnecessary. The flexible tube would naturally be made of sufficient diameter to operate when the elevator leg is in different positions required in doing the work for which it is designed.

X Q. 40. Is there any size mentioned in the patent for the flexible tube as compared with the rest of the device?

A. There is not. That is a matter that is left to the judgment of the machinist or manufacturer.

X Q. 41. Then you think that in order to manufacture this device shown in the Nimbs patent from the specification and drawings a mechanic would have to draw on his judgment in arranging the relative proportions of the different parts of the device, do you?

A. Certainly.

X Q. 42. Taking the device shown in the Nimbs patent, the different parts thereof having the relative proportions shown in the
190 drawings of said patent, what is the greatest number of degrees of a circle through which the outer end of the leg of the elevator can be moved before the side of the mouth of the spout p' nearest the posts G would be brought as far as the side of said posts which is towards the bin?

A. About fifteen degrees.

X Q. 43. At what position on the turn-table in the Nimbs patent do the upright posts G stand?

A. A little away from the centre.

X Q. 44. Do they occupy the same relative position to the centre of the turn-table or nearly so as do the posts J'?

A. The posts J' seem to be set somewhat farther away from the centre.

X Q. 45. Is there much or little difference between their relative positions as to the centre of the turn-table?

A. The posts J' are perhaps one-half further from the centre than the posts G—that is to say, if one is one foot and a half, the other is one foot. This estimate is made from figure 2 of the drawing and is for the pairs of posts.

X Q. 46. Taking an ordinary-sized elevator leg, what would you estimate to be the diameter of the turn-table in the Nimbs device?

A. It is impossible for me to say what would be considered the ordinary size of the elevator leg. The size would, of course, depend upon the size of the vessel upon which it is placed. I should think the turn-table would be made from five to ten feet in diameter.

X Q. 48. What is the distance between the ordinary steam-railway tracks?

A. About four feet six inches; this is my recollection.

191 X Q. 49. Do you find anything in the Nimbs patent which states in terms that the elevator leg is capable, in the Nimbs device, of any movement except a lateral movement and a vertical movement in the sliding frame?

A. I believe that the specification does not state in direct language that the elevator leg has any other movement except the two named in the last question; yet the portion of the specification to which I have already called attention with reference to the point leave- no question in my mind that the outer end of the elevator leg has an oscillating movement in a vertical plane.

X Q. 50. Do you find any device or thing described in the Nimbs

patent for holding the elevator leg in position after such an oscillatory movement, as you call it, except the gravity of the leg?

A. I do not.

X Q. 51. Do you consider the turn-table and upright posts G of the Nimbs device a mechanical substitute or equivalent for the revolving block and supporting arms *e e* of the Eby original patent?

A. I do.

X Q. 52. Do you think it is the design of the Nimbs device that the elevator leg should have any considerable movement except a lateral movement and the vertical movement in the sliding frame?

A. I think it is the design to so construct it that a consid-
192 erable movement will be possible when needed. In some cases I should think it would be used in unloading a vessel or car at a relatively increased distance from the floating elevator. In such case the movement mentioned would be sufficient to reach the hold of the vessel or the interior of the car. Even if the elevator is brought in contact with the floating elevator and the vessel is unusually wide it will require a longer reach to insert the end of the elevator leg into the hold.

X Q. 53. What do you consider the extent of such possible movement?

A. I should estimate it at thirty or forty degrees. It might operate over even a greater range than this; but this, I should think, would be sufficient in practice.

X Q. 54. What is the cause to the limit of this movement?

A. The body of the elevator hinders the leg from moving downward, while the work to be performed limits the movement in the opposite direction. The cars or vessels to be unloaded are placed beside the floating elevator, and the elevator leg reaches downward to receive the grain. It could not well enter the hold of the vessel without being inclined downwardly.

X Q. 55. Id there no other cause for a limit to the vertical swinging movement in an upward direction of the elevator leg except what you have mentioned?

A. The mouth p' and the flexible tube p^2 would also limit the movement if made in the exact form and proportions shown in the drawings; but if a greater movement were desired these could be readily modified by the workman so as to answer the purpose.

193 X Q. 56. You have stated that the common manner of making elevator legs is such that they will have a vertical swinging movement. What means of knowledge have you that this was the case in 1862?

A. None.

X Q. 57. In claim 1 of the original patent of Eby I find the letters *e e* used as designating hook-bolts. I also find the letters *e e* used to designate hook-bolts in another place in the specification of the same patent, while in another part of the specification of said patent I find the letters *m m* used to represent "bolts" secured in the framework, the upper ends of which are turned over the block *b*. Which part of the device described in the original patent do

you consider, from the specification and drawing of the Eby original, to be the hook-bolts?

A. The bolts which secure the turn-table or block *b* to the frame *a*. In the drawing they are marked *m*.

X Q. 58. What part of the device described in the Eby original patent is represented by the letters *e e*?

A. Two arms which rise from the upper surface of the block *b* and support the inner end of the carrier.

X Q. 59. Referring to the first claim of the original patent, do you consider it clear from that claim whether the word "hooks-bolts *e e*" used in said claim refer- to the arms *e e* or the bolts designated by the letters *m m*?

A. I am clearly of opinion that the bolts marked *m m* in the drawing are meant by the first claim.

194 X Q. 60. Please give your reasons for this opinion.

A. In the latter part of the fifth paragraph of the specification I find this sentence: "The inner end of the carrier-frame is pivoted to arms *e e* rising from the block *b*, as shown." This is consistent with the drawing, a pair of such arms bearing the letters "*e e*." The last sentence in said paragraph is as follows: "*m m* represent hook-bolts secured in the framework, the upper ends of which are turned over the block *b*, as shown." This is also consistent with the drawing. The bolts mentioned are reel-bolts with nut and thread at the lower end, while the upper end is bent at right angles to lie over the edge of the block *b* in the manner of a hook. The pair of arms referred to, on the contrary, do not have the form of, neither do they perform the function of, bolts. They are merely supporting arms, having their lower ends flattened and bolted or screwed upon the upper surface of the block *b*. In the last sentence of the next paragraph it is stated that the carrier may be turned by revolving the block *b*, "it being secured in any desired position by means of the hook-bolts *e e*." The pair of arms which are marked *e e* in the drawings serve the purpose of supporting the inner end of the carrier, whether the carrier is stationary or is being revolved, and it is no part of their office to secure the carrier of, the block *b* against rotation or revolution. The bolts marked *m m* in the drawings alone serve to secure the carrier and block *b* against rotation, and for this reason it seems clear to me that the

195 letters "*e e*" in the last quotation should have been printed "*m m*." In the first claim this error is repeated. The term "hook-bolts" is used, and such terms cannot consistently be applied to the supporting arms *e e*. In the latter part of claim 1 I find the phrase "for supporting a carrier," which, I take it, does not refer to the hook-bolts alone, but to the block *b* and hook-bolts. In the 3rd claim both the arms *e e* and the bolts *m m* are mentioned consistently with the drawings.

X Q. 61. There was, then, an error in the first claim, was there not, in using the letters *e e* to designate hook-bolts?

A. Only a partial error. The term "hook-bolts" is correct, and simply the change of the letters of reference would not mislead a workman.

X Q. 62. What do you mean by a "partial error"?

A. If the language is used for the purpose of description and a portion of the words or references are incorrectly given, but enough of it is correct to convey the meaning intended, then there is a partial error in description. In this case one of the elements of the claim is stated in this language, "the hook-bolts *e e*." In this there are two factors of description, the term "hook-bolts" and the letters "*e e*." The latter is incorrect, while the former is correct. This makes a partial error in description.

X Q. 63. I did not ask you whether or not there was an error in the description, but whether there was not an error in using the letters "*e e*" in the first claim to designate hook-bolts, and I will now repeat the question and ask you to answer it without reference to your opinion as to whether the description contained in
196 the first claim is misleading or not or whether the sense of it clearly appears or not. The question simply is whether or not it is an error to use the letters "*e e*" to designate hook-bolts in the Eby original patent.

A. Certainly it is. I have already stated that the letters, small *e e*, should not have been used.

X Q. 64. Now, is it not a fact that the arms *e e* support the carrier and the block *b* supports the arms, so that both the block *b* and the arms *e e* of the Eby original patent support the carrier?

A. Both the arms *e e* and the block *b* perform their part in supporting the carrier?

X Q. 65. Is it not the function of the bolts *m m* simply to hold the revolving block in position, and is it not a further fact that the bolts *m m* perform no function in supporting the carrier?

A. The block *b* could not support the carrier without the assistance of the hook-bolts. Without the latter the block *b* would have to slide out of place and let the carrier fall. It is therefore quite proper, I think, to regard the hook-bolts as a part of the carrier's supporting device.

X Q. 66. The only function, then, of the hook-bolts in supporting the carrier is to hold the revolving block *b* in place. Is that what you mean to say?

A. Yes; I mean that the hook-bolts secure the block *b* against rotation, lateral movement, or tilting.

X Q. 67. And it is only in performing this function that the hook-bolts can be said to aid in supporting the carrier. Is that so?
197 A. It is.

X Q. 68. Then, is it not a fact that the action of the hook-bolts in supporting the carrier is indirect, while the action of the arms *e e* in supporting the carrier is direct?

A. It is.

X Q. 69. Now, referring again to the language of the first claim of the patent and attending to the language there employed, to wit, the combination of certain elements therein described for a particular purpose, to wit, for supporting a carrier, and further attending to the fact that there is an error (or, as you have called it, a partial error) in the description, arising from the erroneous use either of

language describing one of the elements of the claim or of the letters which are used in the drawing to indicate one element of the device and in the claim a different element of the device, is there not at least room for a difference of opinion among intelligent mechanics in the art to which this invention pertains as to what elements of the device are in fact intended to be embraced in the first claim, bearing in mind the still further fact that both the elements upon which the doubt arises have similar functions?

A. Comparing the drawings, the entire specification and first claim, I think, will leave no room for doubt as to what elements are intended to be comprised by the first claim.

X Q. 70. Are you as positive in this opinion as you are in regard to all and any of the opinions you have expressed in this case?

A. I am.

198 X Q. 71. Have you already given all your reasons for believing that the bolts *m m* are intended as an element of the first claim of the Eby original patent rather than the arms *e e*?

A. I think I have.

X Q. 72. I will ask you to state positively whether you have or not stated all your reasons for the said opinion, and of you have not stated them all please state them now.

A. I do not think of any further reasons at present, and am satisfied with what I have given.

X Q. 73. Do you think that a mechanic of ordinary skill in the art to which this invention shown in the original Eby patent appertains would understand from the specification and drawings of said original patent that the carrier therein shown and described is adapted to be adjusted both vertically and horizontally without interfering with or stopping the operation thereof?

A. The specification does not state that the endless belt of the carrier is to remain in motion while the carrier is being changed from one position to another, and the drawings do not indicate that this could be done. In rotating the turn-table and carrier the gearing mounted on the turn-table is not disarranged, but all the wheels retain the same position with reference to each other, and continue to operate. There is nothing shown, however, to stay the turn-table or block *b* when the hook-bolts are released, and such turn-table may therefore slide laterally when the bolts are released and thus slacken the belt which transmits the power from the sheller to the horizontal pulley b^2 and suspend the operation until

199 the block *b* is again adjusted.

X Q. 74. Do you think, then, that such mechanics referred to in cross-question 73 would not understand that said carrier is adapted to be adjusted both vertically and horizontally without interfering with or stopping the action of the carrier?

A. I do not think he would.

X Q. 75. Are the reasons which you have stated the only ones you have to give for this opinion?

A. Yes; I have only two reasons for my opinion, to wit, that the specification does not intimate that such continuous operation is designed or possible, and that I do not believe such continuous

operation would be possible if the machine were made as described and shown in the drawings.

X Q. 76. This is not an answer to the question, and I request the notary to re-read cross-question 75 and ask that it be answered directly.

(The notary re-reads cross-question 75.)

A. They are.

X Q. 77. I notice in figure 2 of the drawing of the original Eby patent that in a bar or support beneath the revolving disk *b* there appears to be two round appertures through which appear to pass the belt which communicates the power from the sheller to the horizontal pulley beneath the disk. Having this fact in view, would not a lateral movement of the disk (assuming that there was nothing else to hold the disk in position from moving laterally except the bolts *m*) tend to tighten, rather than loosen, the belt communicating with the sheller?

200 A. The belt would not be tightened if the block moved toward the sheller, and if it moved laterally sufficiently to tighten the belt by drawing in the holes referred to there would be so much friction that the operation would be stopped or the belt would be injured.

X Q. 78. What would there be to cause a lateral movement of the block when the bolts were loosened?

A. The tension of the power belt, the jarring of the sheller frame, the weight of the carrier, and the force applied in shifting the carrier to its new position.

X Q. 79. What is there in any of these causes to produce such movement as you have described?

A. Force.

X Q. 79. Have you ever operated a cob-carrier such as is shown either in the Eby patent or the reissue thereof?

A. No.

X Q. 80. Have you ever seen this carrier in practical operation?

A. Not to my recollection.

X Q. 81. You have stated that you think the carriers shown in the Brinsmead patent and the Nimbs patent may be swung vertically or horizontally without interrupting the operation of the carrier-belt. Do you think this result can be produced in any of the other devices to which you have referred, excepting, of course, the device shown in the Eby model and in the model marked "defendants' device"?

A. In the patent to Richard Bryan, No. 117,734, a carrier is shown in which provision is made for turning the same or raising

201 or lowering it while the carrier-belt is in motion. In this machine the carrier-belt is driven from its upper end by a belt or chain, G, running over the pulley Y, on the upper carrier-shaft, and over a pulley, X, on the side of the machine. This belt is deflected by a pair of vertical rollers, D, which, the specification states, may be made adjustable for the purpose, of course, of producing the required tension of the chain with the varying position

of the outer end of the carrier. It is obvious that this adjustment can be made simultaneously with the change of the position of the carrier. I recognize the fact that this adjustment is not automatic and is not as convenient as some of the others, yet I believe it can be made without stopping the action of the carrier-belt. None of the other patents, with the exception mentioned in the question, appear to show a carrier which can be shifted without stopping the operation of the carrier-belt.

X Q. 82. How do you understand may the directing rollers D in the Bryan patent be adjusted?

A. The drawing does not show them adjustable, but the specification says that they may be made adjustable. It is an easy matter for a workman to show this feature. He would be familiar with a variety of devices, long in use, for adjusting pulleys for tightening belts or similar purposes.

X Q. 83. I think you have not answered the question. My question was not whether the rollers might in fact be adjusted, but in what manner they may be adjusted in the device shown in the Bryan patent. Please answer the question with this explanation of it.

A. They may be made to shift to and from the side of the
202 thresher A at right angles to the latter, or they may be made to shift obliquely, so as to tighten or relax the belt G.

X Q. 83. Have you now stated all the ways in which these directing rollers may be adjusted in the Bryan device?

A. I have stated all the movements that would be necessary for the purpose of giving the proper tension to the belt G. I notice now that such an adjustment could also be made automatically, as is shown in the Nimbs patent, wherein weighted-tension pulleys M "regulate the tension of the belts L^3."

X Q. 84. Do you find in the Bryan patent any explanation of the manner in which these directing rollers are adjustable or may be made adjustable?

A. I do not.

X Q. 85. I find it stated in the Bryan patent that C is a horizontal shaft placed by the side of the thresher and held by journal boxes, as shown by Fig. 1. There is a corresponding shaft on the opposite end of the thresher; there is a mitre wheel at one end of each, that is driven by the mitre wheels on the shaft B. What is the purpose of having two such horizontal shafts and two pairs of directing rollers, as stated in the patent, one pair on each side of the thresher?

A. The object in using two pairs of the shafts and pulleys mentioned is, I assume, to use two driving belts, thus doubling the power used in driving the carrier-belt.

X Q. 86. Can you think of any other purpose in having two such shafts, two pulleys, and two directing rollers on each side of the machine?

A. No.

203 X Q. 87. Do you think that it is not possible that two such sets of devices are provided for the purpose of changing a

single belt for driving the carrier from one side of the machine to the other to enable the operator to move the carrier laterally into such position as would render it impracticable to operate the machine with the power belt on the opposite side of the machine?

A. It is possible that the inventor had in mind the changing of a single chain from one side to the other, but I see no necessity for making such change. One set of wheels and guide-pulleys would answer the purpose if the guide-pulleys are made adjustable, as the inventor says they may be.

X Q. 88. The specification of the Bryan patent speaks only of one rope or chain to drive the carrier, and the drawing shows but one such rope or chain. Is not this true?

A. It is.

X Q. 89. Please explain the operation of lowering the carrier in the Bryan patent from the position in which it is shown in the drawing.

A. To lower the carrier the windlass F on the rear of the thresher is turned so as to unreel the chain or rope Q.

X Q. 90. Is this all that would have to be done, assuming that the machine is in motion and not stopped during the operation of lowering?

A. This is all that would be necessary to simply lower it, but the drive rope or chain would have to be adjusted afterwards, or, as already stated, this adjustment could be made simultaneously with the lowering the carrier, or if an automatic adjustment is used for the pulleys D the adjustment would need no attention. I should have stated that before the carrier is lowered the tension of the drive-belt should be slackened and afterwards adjusted, if the adjustment is not made simultaneously with the lowering. If the adjustment is not made simultaneously with the lowering the carrier-belt will, of course, cease to run until the belt is again tightened.

204

X Q. 91. What sort of an adjustment of the drive-belt are you talking about?

A. An adjustment of its tension so that it may transmit power or motion from the pulley X on the side of the thresher through the pulley Y and its shaft to the carrier-belt.

X Q. 92. By what means would you effect such an adjustment?

A. By means of the pulley D. Changing the position of these would change the position of the drive-belt.

X Q. 93. Now explain how you would change the position of these rollers or pulleys in order to effect the tension of the drive-belt.

A. I would secure them on a sliding seat, so that they would be shifted to and from the machine.

X Q. 94. What would be the extent or probable extent of the distance through which you could make these directing rollers adjustable in the manner you have stated without throwing the belt off the pulley Y?

A. In a full-sized machine I should think the range of movement of the adjusting pulleys could be about three feet without interfering with the operation of the drive-chain.

205

X Q. 95. How far would this range enable you to move the end of the carrier?

A. It is difficult to give a close estimate, but I think it would allow sufficient movement of the carrier to meet the requirements of work.

X Q. 96. This would depend upon the length of the carrier, would it not?

A. Upon the length of the carrier and the position of the pulleys D and X.

X Q. 97. Supposing the pulleys D and X to be in the position shown in the drawing, and supposing the carrier to be twenty feet long, and supposing that you wished to lower it from a position as nearly perpendicular as it is shown in the drawing to a horizontal position, do you think that the range for the directing rollers of three feet would enable you to do so without some other means of lengthening the drive-belt?

A. The range of three feet for the guide-pulleys would, I think, be sufficient. It might or it might not be quite sufficient.

X Q. 98. Referring now to the device shown in sheet No. 1 of the drawings of the Brinsmead patent, describe the manner of swinging or changing the direction of the carrier vertically and laterally.

A. The carrier is raised or lowered by changing the length of the support of the outer end of the carrier. If the carrier is to be moved laterally the set-screw on the arm *d* of the turning frame is released and the carrier is shifted and the set-screw again tightened.

206 X Q. 99. Is this all that has to be done to shift the carrier laterally?

A. No; the pulleys *g* and *i* should be adjusted simultaneously with the shifting of the carrier if it is desired to continue the *the* action of the carrier-belt.

X Q. 100. To adjust the pulley *i* is it necessary that the pulley *j* shall slide not only through its bearing or box, but also that the box shall slide upon the bar *l*?

A. It is.

X Q. 101. The pulley *g* must be keyed upon the spindle *h*, must it not?

A. No; I should think that it must be feathered.

X Q. 102. Is it stated in the specification in what manner the pulley *g* is fastened to the spindle *h* except that it is capable of being adjusted longitudinally along the spindle?

A. It is not.

X Q. 103. Is the pinion *f* above or below the frame *a*?

A. Above.

X Q. 104. How far can the spindle *f*, as is shown on the drawing, be moved towards the bracket *b* without throwing it in contact with the bracket?

A. I think the spindle *f* is designed to be high enough to pass over the bracket *b* when the frame *a* is rotated.

X Q. 105. I find it stated in the Brinsmead specification that *m m* are two bearings in the movable frame *a* to receive the spindle *k* when required to drive the opposite drum. What is the neces-

sity for having these two bearings *m m* in addition to
207 similar bearings on the opposite side of the machine?

A. I presume it is the intention to change the pinion *f* and the shafts and pulleys which co-operate in driving it to the opposite side of the frame *a* when the carrier is to be swung to an extreme distance on the side opposite the pinion small *f*, as shown in the drawings. For ordinary changes of position of the carrier the pinion and shafts need not be changed.

X Q. 106. Is there not a post rising at the point or near the point *b*?

A. Yes.

X Q. 107. Is it not a fact that the pinion *f*, if moved towards the point *b*, is likely to come in contact with the post if made in accordance with this drawing?

A. The drawings are not accurately made. On one side the post is nearer the circular bar forming the outer portion of the frame *a* than the other side. We can therefore form only approximate conclusions on this question. The inference should be, I think, that the pinion will pass the post. It is not to be presumed that the circular bar referred to is let into the post mentioned, and if it is not, then there is room for the spindle topass the post.

X Q. 108. I was not asking for your presumptions, but based my question on the drawings as they appeared. Is it not a fact that according to the drawings, figure 2, sheet 1, of the Brinsmead patent the spindle *f* extends to the extreme outside margin of the circular frame *a*, while the post rising at the point *b* appears to pro-
208 ject over the outside margin of the frame?

A. It is a fact that the drawing shows what the last question sets forth, but I had this in view when I made my last previous answer.

X Q. 109. Then, if a machine was made in exact accordance with the drawing, figure 2, sheet 1, the spindle *f* would strike the post at *l*, if moved far enough in that direction, would it not?

A. Yes; but an intelligent workman would not cut notches into the posts referred to for the purpose of imitating what is obviously a defect in the drawings.

X Q. 110. The pulley *g* is located some considerable distance below the pulley *i*, is it not?

A. It is.

X Q. 111. Now, in lowering the end of this carrier it is necessary first to loosen the ropes *x* to lower the upper tubes, is it not?

A. The carrier may be raised or lowered to a certain extent by shifting the lower end of the supporting frame to or from the machine. If a greater movement is desired the ropes *x x* must be slackened or tightened to allow the supporting frame to be shortened or lengthened.

X Q. 112. You have stated several things which had to be done if the carrier was moved laterally, but, if I recollect right, you have stated nothing about moving the outer end of the carrier laterally. Now, if you wish to shift the carrier laterally, what has to be done at the outer end thereof?

A. The carrier-supporting frame must be shifted laterally
209 in proper direction and to the desired distance. This may be done by lifting it bodily from the ground and placing it to the right or left. If it is to be moved far the stake *z* must be drawn and reset.

X Q. 113. What distance would you say was "far" in this connection?

A. Perhaps ten or twelve feet.

X Q. 114. Do you think it could be moved ten or twelve feet without drawing the stake *z* or using a similar stake?

A. I should think so in the ordinary sized machine. If the distance from the stake to the lower end of the frame is comparatively short, then you cannot move it so far.

X Q. 115. Then, as I understand you, in order to move the carrier shown on sheet 1 of the Brinsmead drawings any very considerable distance laterally it is necessary to loosen the set-screw which holds the bar *d* on the frame *c*, to move the frame *a* the required distance, to move the pulley *g* on the spindle *h*, to move the pulley *i*, to move the spindle *j* with its bearing on the bar *l*, to lift and carry the frame, tubes, wheels, and ropes and drums which form the apparatus at the outer end of the carrier, to draw the stake *z*, having first loosened the rope *y*, and when the carrier is again set to drive the stake *z* and properly adjust around it the rope *y*. Is that true?

A. It seems to be.

X Q. 116. Then in order to move laterally any considerable distance the carrier of the Brinsmead device shown on sheet 1 of the patent drawing without stopping the motion of the carrier it will be necessary to do all the things mentioned in cross-
210 question 115 simultaneously, would it not?

A. It would be necessary to loosen the set-screw which holds bar *d* first, and then do the other things substantially simultaneously, and thereafter again toghten the set-screw.

X Q. 117. It would be necessary to stop the motion of the carrier-belt in order to change the pinion *f* from one drum to the drum at the opposite side of the machine. Is this true?

A. Yes.

X Q. 118. The bearing for the spindle small *j* is also clamped tight when the machine is in operation and loosened when the carrier is to be moved laterally, is it not?

A. It is.

X Q. 119. Referring now to the apparatus shown on sheet number two of the Brinsmead drawings, I notice that there is a support extending from the spindle supporting the pulley *m*. What is the purpose of this support?

A. The specification does not state. The drawings indicate that the part referred to supports the spindle *l*, but this is not clear.

X Q. 120. There appears to be a slot at one end of this support, and, indeed, taking figures one and three together, there appears to be two slots in the support. What do you take to be the purpose of these slots?

A. The presumption is that they are for the purpose of adjusting

the bar in which they are cut, and thus adjust the pulley-supporting spindle small *l*.

X Q. 121. Describe the operation of moving the carrier shown in sheet 2 of the Brinsmead patent laterally.

A. If it is to be moved to the right the rope H on left side
211 of the machine is slackened, the spindles *k* and *l* released sufficiently for adjustment, and the rope H on the right side tightened while the carrier is swung to the right.

X Q. 122. Is this all that has to be done?

A. The spindles *l* and *k* must afterward be tightened, and if the carrier is to be swung far the inner end of the carrier should be lifted to the left on the gear rack *c c*.

X Q. 123. In moving the carrier laterally is it not necessary to adjust the pulley *n*?

A. Not unless the carrier has been moved a considerable distance and not if a wide pulley be used.

X Q. 124. How far could the carrier be moved laterally without moving the pulley *n* on its spindle?

A. Possibly six or eight feet at its outer end. This is only an estimate, the distance depending upon the relative proportions of the carrier, spindles, pulleys, &c.

X Q. 125. Assuming that the carrier was moved far enough laterally to necessitate an adjustment of the pulley *n*, what would then have to be done in order to properly adjust the apparatus?

A. The pulley *n* would have to be shifted on its shaft.

X Q. 126. Will anything else have to be done besides what you have stated? Would not the slotted bar or support also have to be moved?

A. If said bar is used for the purpose of supporting the spindle *l* it would only be adjusted or moved for the purpose of adjusting said spindle.

X Q. 127. If your supposition is correct that the said bar is used for the purpose of supporting the spindle *l*, then in case of a lateral movement of the carrier far enough to necessitate the adjustment of the pulley *n* in what manner would the said bar have
212 to be adjusted?

A. It does not appear that it would be necessary to adjust said bar for the purpose of adjusting the pulley *n*.

X Q. 128. I did not mean to assume that it would be necessary to move the bar in order to move the pulley *n*, but meant to ask you in what manner the bar would have to be adjusted in case the carrier were moved laterally far enough to necessitate an adjustment of the bar. With this explanation, please answer the question.

A. Said bar would have to be moved longitudinally and perhaps also laterally upon its support.

X Q. 129. By longitudinally I understand you to mean a movement lengthwise of the bar; is that correct?

A. It is.

X Q. 130. Do you understand that the spindle *l* shown in sheet 2 is movable in its bearing laterally?

A. I think it must be, though the specification and drawings are not clear on this point.

X Q. 131. What reason have you for thinking that it is capable of such lateral movement in its bearings?

A. On further examination of the drawing I conclude that it does not have such a lateral movement, but only oscillates upon the universal joint formed at the outer end with the inner end of the shaft *k*.

X Q. 132. Do you mean that the spindle *l* has an oscillating movement?

A. I mean that the end of the spindle *l* which supports
213 the pulley *m* is free to move in a horizontal curved path described, with the universal joint mentioned for a centre.

X Q. 133. Does the patent explain how this movement is secured?

A. The specification does not explain this, but the drawing indicates, so it seems, that the bar already mentioned supports the shaft *l*, and that said bar is movable and probably secured in the desired position by the bolts or set-screws seated in the slots shown at the outer end of said bar.

X Q. 134. In order to obtain the oscillatory movement of the spindle *l* the bar supporting the spindle has an oscillatory movement also, probably, has it not?

A. It may move bodily in the arc of a circle of which the universal joint mentioned is the centre, or it may be so arranged so as to have an oblique horizontal parallel motion, like that of one of the sides of a parallel rule.

X Q. 135. The bearings of the spindle *k* are fixed, are they not?

A. They are.

X Q. 136. To what are they fixed?

A. To the inner end of the carrier-frame.

X Q. 137. Describe on figure 1, sheet 2, as near as possible the points of the carrier-frame to which these bearings are attached.

A. Just below the roller E and over the board which joins the end of the side rails of the carrier-frame, marked A A. Said board appears in figure 1 let into the under side of the side rail A.

X Q. 138. This arm or board is intended to be clamped fast in position while the machine is in operation, is it not? I refer
214 now to the arm which supports the spindle *l* or is supposed to do so.

A. It is, I think.

X Q. 139. The pulley *n* does not appear to be connected with the supporting arm, does it?

A. It is not so shown in the drawings.

X Q. 140. Referring to the provisional specification of George Thornton, please point out any language in said specification which indicates that the elevator is capable of adjustment vertically.

A. Beginning in line 14 of said provisional specification, I read the following: "The lower end of this trough is attached, as above described, by a circular plate or stud to the threshing machine, and the outer end is supported on two props which can be lengthened

or shortened to suit the elevation required." This language seems to clearly indicate that a vertical adjustment is to be made.

X Q. 141. Is this all that is said in this specification in regard to such vertical adjustment or the means by which such vertical adjustment is secured?

A. It is.

(Signed) CYRUS KEHR.

Counsel for defendants here introduces copy of file-wrapper and contents of application of H. H. Eby for letters patent for cob-carriers for corn-shellers, No. 134,790, dated Jan. 14, 1873, and defendants rest.

(Endorsed:) Filed June 29, 1889. Wm. H. Bradley, clerk.

215 OFFICE OF LORENZO LELAND, POST-OFFICE BLOCK,
OTTAWA, ILL., *January* 29, 1886—10 o'clock a. m.

Present: Solomon E. King and John H. Gilman, defendants, and Lorenzo Leland, solicitor for defendants.

Before Thomas E. McKinley, a notary public.

JOHN H. GILMAN, one of the defendants, was produced, sworn, and examined, and testified as follows:

Q. 1. Are you the same John H. Gilman who has already testified in this suit?

A. I am.

Q. 2. Mr. Eby, in his testimony taken in Chicago on June 3rd, 1885, testified in substance that in the latter part of 1873 or early part of 1874 he had an interview with you and showed you a model of his cob-stacker, like the one in evidence marked "Eby;" that you examined the model; that you said that you had never seen anything of the kind before, but that you thought it would not pay to manufacture it in connection with your corn-shellers. What have you to say in regard to this statement?

A. Mr. Eby did not have an interview with me in 1873 or 1874, nor did he show me a model of his cob-stacker at that time nor at any other time. I never saw a model of his cob-stacker until
216 on the day I testified in this suit. I never saw or heard of Mr. Eby until within less than two years before he commenced this suit. I never heard of Mr. Eby's cob-carrier until several years after we had been manufacturing our cob-carrier like the model in evidence marked "King, Hamilton & Co.'s device."

JOHN H. GILMAN.

217 SOLOMON E. KING, one of the defendants, examined in his own behalf, after having been first duly sworn testified as follows:

Q. 1. What is your name, age, and place of residence?

A. Solomon E. King; age, 57, and residence, Ottawa, Illinois.

Q. 2. Are you one of the defendants in this suit?

A. Yes.

Q. 3. Are you acquainted with Mr. Eby?

A. I have seen him.

Q. 4. (Same question as Q. No. 2 just answered by Mr. Gilman.)

A. No such interview ever occurred. The only time that I ever saw Mr. Eby was shortly before the commencement of this suit, when he called on us and wanted us to pay him a royalty because he said we were infringing on his patent. I think I told him that I did not regard his patent as valuable enough to require us to take out license from him. I never saw or heard of Mr. Eby's cob-carrier until some years after we had been manufacturing our movable cob-carrier.

(Signed) SOLOMON E. KING.

(Endorsed:) Filed Feb. 3, 1886. Wm. H. Bradley, clerk.

218 Circuit Court of the United States for the Northern District of Illinois, *ss.*

HENRY H. EBY
vs.
SOLOMAN R. KING *et al.* } In Equity.

STATE OF ILLINOIS, }
County of La Salle, } *ss:*

Ambrose L. Jordon, being duly sworn, on his oath says that his residence is Ottawa, Illinois; that he has known the above-named defendants for over 15 years and during said period has been familiar with the style, construction, and operations of the implements and machines manufactured by them at Ottawa -foresaid; and affiant further says that he has seen and knows the construction and operation of the exhibit in above-entitled cause, which is intended to represent the kind of cob carrier and stacker made and sold by defendants for use in connection with corn-shellers and marked "Complainant's Model Exhibit King, Hamilton & Co.'s Device;" and affiant further says that defendants, to affiant's personal knowledge, have each year for the two (2) years next preceding March 20, 1877, and since, at Ottawa aforesaid, manufactured and sold cob stackers and carriers substantially the same in construction and operation as that shown by said exhibit.

AMBROSE L. JORDAN.

Subscribed & sworn to before me this 30th day of October, 1888.
[SEAL.] LORENZO LELAND,
Notary Public.

It is hereby agreed that the foregoing affidavit may be read by defendants in proof on the hearing of said cause with the
219 force & effect as though taken regularly as a deposition.

JESSE COX, *Solicitor for Complainant.*
L. LELAND & JNO. G. MANAHAN,
Solicitors for Defendants.

(Endorsed:) Filed Oct. 31, 1888. Wm. H. Bradley, clerk.

221 UNITED STATES PATENT OFFICE.

HENRY H. EBY, of Mendota, Illinois.

Improvement in Cob-carriers for Corn-shellers.

Specification forming part of Letters Patent No. 134,790, dated January 14, 1873.

To all whom it may concern:

Be it known that I, Henry H. Eby, of Mendota, in the county of La Salle and State of Illinois, have invented a new and useful corn-cob carrier; and I do hereby declare that the following is a full and exact description of the same, reference being had to the accompanying drawing and to the letters of reference marked thereon.

This invention is designed for use in connection with a power corn-sheller for the purpose of carrying away the cobs from the machine; and consists mainly in the combination of suitable devices for actuating the carrier, with means for adjusting the carrier to cause it to discharge the cobs in any desired direction, as will be fully described hereinafter.

(Here follows diagram marked p. 220.)

In the drawing, figures 1 and 2, views in elevation of my invention; Fig. 3, a partial plan view of the same; and Fig. 4, a view of the bolts for securing the block.

To enable others skilled in the art to make and use my invention, I will now proceed to describe fully its construction and manner of operation.

a a a represent a suitable frame-work for supporting the operating parts of the machine. *b* represents a disk or block, resting upon proper bearings upon the frame-work *a*, provided with a central orifice, through which passes a shaft, b^1, provided at its lower end with a pulley, b^2, and at its upper end with a bevel-gear wheel, b^3, as shown. *c* represents a pinion attached to the inner end of a short horizontal shaft resting in proper bearings on the block *b*, the outer end of which is provided with a gear-wheel, *c'*. D represents the carrier-frame, constructed generally in any proper manner, and provided with the endless belts *d d*, having suitable cross-slats, and the pivoted supports d^1 d^1, which support the outer end. The inner end of the carrier-frame is pivoted to arms *e e* rising from the block *b*, as shown. d^2 represents a gear-wheel attached to the shaft of the lower pulley of the endless belts of the carrier, which wheel engages with the gear-wheel *c'*, as shown. *m m* represent bolts secured in the frame-work, the upper ends of which are turned over the block *b*, as shown.

The manner of using my invention will now be described. It being located in reference to the corn-sheller in such manner that the cobs from the latter can be discharged upon the carrier, power is communicated to it from the sheller by means of a belt which runs about the pulley b^1. By this means motion is communicated, through the connections described, to the endless belt, which carries

H. H. EBY.

Cob-Carriers for Corn-Shellers.

No. 134,790. Patented Jan. 14, 1873.

Fig 1

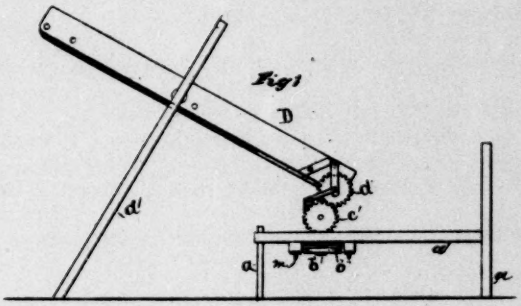
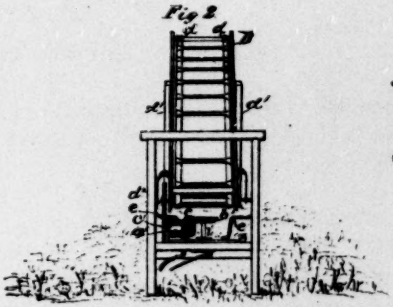


Fig 2



No. 336.
Eby
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King et al.
p. 220

Fig 3

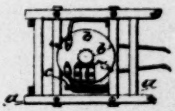
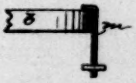


Fig 4



Witnesses
Harris B. Clark
Columbus Choate

Inventor
Henry H. Eby
by Dyer, Beadle & Co.
Attys.

off the cob. The carrier may be turned for the purpose of discharging the cobs in any desired direction by revolving the block *b*, which supports the carrier-frame and the main portion of the actuating devices upon its bearings, it being secured in any desired position by means of the hook-bolts *e e*.

The described construction has been found in practice to be well adapted for the purpose for which it is designed.

Having thus fully described my invention, what I claim as new, and desire to secure by letters patent, is—

1. The combination of the block *b*, adapted to revolve as described, and the hook-bolts *e e*, for supporting a carrier, as described.

2. The combination of the block *b* and the central vertical shaft and its connections, substantially as described.

3. The combination of the frame-work *a a a*, block *b*, the central vertical shaft b^1, pulley b^2, gear-wheel b^3, horizontal shaft with pinion *c* and gear-wheel *c'*, carrier-frame D having belts *d d*, supports d^1 d^1, gear-wheel d^2, arms *e e*, and bolts *m m*, arranged as and for the purpose described.

This specification signed and witnessed this 21st day of October, A. D. 1872.

HENRY H. EBY.

Witnesses:
L. B. CROOKER.
JOSEPH HUNTER.

[Endorsed:] Eby. Original.

222 *File-wrapper and Contents in the Matter of Reissue Letters Patent Granted to Henry H. Eby August* 21, 1877, *No.* 7851.

(2–175.)

DEPARTMENT OF THE INTERIOR,
UNITED STATES PATENT OFFICE.

To all persons to whom these presents shall come, Greeting:

This is to certify that the annexed is a true copy from the files of this office of the file-wrapper and contents in the matter of the reissue letters patent granted Henry H. Eby August 21, 1877, number 7851, for improvement in cob-carriers for corn shellers.

In testimony whereof —, Benj. Butterworth, Commissioner of Patents, have caused the seal of the Patent Office to be affixed [SEAL.] this 28th day of January, in the year of our Lord one thousand eight hundred and eighty-five, and of the Independence of the United States the one hundred and ninth.

BENJ. BUTTERWORTH,
Commissioner.

223 To the Commissioner of Patents:

Your petitioner, of Mendota, in the county of La Salle and State of Illinois, prays that he may be allowed to surrender the letters

patent for improvement in cob-carriers for corn-shellers granted to him January 14th, 1873, and numbered 134,790, whereof he is now sole owner, and that letters patent may be reissued to him for the same invention upon the annexed amended specification, and he hereby appoints Geo. W. Dyer & Co., of Washington, D. C., his attorneys, with full power of substitution and revocation, to prosecute this application, to make alterations and amendments therein, to receive the patent, and to transact all business in the Patent Office connected therewith.

Accompanying this petition is an abst-act of title, duly certified as required in such case.

HENRY H. EBY.

224 To all whom it may concern:

Be it known that I, Henry H. Eby, of Mendota, in the county of La Salle and State of Illinois, have invented an improvement in cob-carriers for corn-shellers, of which the following is a specification:

The object of my invention is the production of a cob-carrier for power corn-shellers to receive the cobs from the spout of the sheller and deliver them in any desired direction which is adapted to be adjusted both vertically and horizontally upon its supporting frame and driving mechanism, without interfering with or stopping its operation.

Erase & insert B, April 14, 1877.

By B, Ap'l 14, 1877, concluded.

My invention therein consists, first, in the carrying frame adapted to be adjusted both vertically and horizontally upon its supporting frame and mechanism and the endless belt driven by power applied at the inner end of such carrying frame, second, in supporting the outer end of the adjustable carrying frame by means of pivoted legs, third, in the combination of the adjustable carrying frame of a revolving block or dish, upon which the inner end of the said frame is supported, and the pivoted legs for supporting the outer end of such carrying frame. Fourth. In the combination with the carrying frame and revolving block or disk of a system of cog gearing for transmitting power from a pulley to the inner end of the endless belt, fifth, in the peculiar means for supporting the inner end of the carrying frame and further in the combination of the parts for driving the endless belt all as more fully hereinafter explained.

[Matter enclosed between rules erased in copy.]

225 To enable others skilled in the art to manufacture and use my invention, I proceed to describe the same having reference to the drawing, in which figure 1, is a perspective view of the machine. Figure 2, an end elevation looking in the direction of the arrow in figure 1, with a part of the supporting frame removed and the pivoted supports broken away to show the operating mechanism. Figure 3, a sectional view of a part of the operating mechanism and figure 4, a view of one of the hook-bolts for guiding and holding the revolving block.

Like letters denote corresponding parts in each figure.

A represents a proper framework for supporting the operating parts of the machine, upon the cross-pieces *a a'* of which is mounted a disk or block, B, this block may rest upon a plate or support *b* connecting the cross-pieces *a a'* and is held in position and guided by any suitable number of hook-bolts *b'* secured in the frame and having their upper ends turned over the block, which allow it to be revolved in either direction. A vertical shaft C passes loosely through the plate *b* and the center of the block B and is provided on its lower end below such plate with a suitable pulley C around which a belt *c* passes for driving the operating mechanism. This shaft C projects above the block B, and a bevel gear C is keyed on its upper end D is a short horizontal shaft which is supported on one side of the movable block B in a standard *d*. The inner end of this shaft has a bevel-gear wheel D which meshes with the bevel gear C^2 on the vertical shaft C, and the outer end is provided with a spur wheel D^2 E is the carrying spout or frame of any proper form having at its upper and lower ends the
226 rollers E' E^2 around which the endless carrying belts *e e* extend provided with suitable cross-slats *e'* The inner or lower end of the carrying frame is supported by arms F F, which rise from the block B to which they are rigidly secured, and are pivoted to hangers F^2 F^3 attached to the sides of such carrying frame. The shaft of the roller E^2 is extended through one side of the carrying frame, and a cog wheel E^3 is keyed thereon, which meshes with the cog wheel D^2 on the horizontal shaft D. The arms F F' are pivoted to the hangers F^2, F^3 on the line of the shaft of the roller E^2 so that the outer end of the carrying frame can be raised or lowered to any desired extent without throwing the cog wheels D^2 and E^3 out of gear and without affecting in the least the operation of the endless belt. To the sides of the carrying frame at any desired point are provided the supporting legs G G' which support the outer or upper end of such carrying frame By means of these pivoted supports, the outer end of the carrying frame is adapted to be raised or lowered and supported at any desired elevation. In operation the carrying frame is located with reference to the corn-sheller in such manner that the cobs can be discharged upon the lower end of the endless belt. Motion being communicated to the pulley C' the endless belt is operated through the gearing described and the cobs moved to and thrown from the outer or upper end of the carrying frame. The cobs are delivered into a wagon driven under the end of the carrier, or into any proper sta-

230 THE UNITED STATES PATENT OFFICE.

To all persons to whom these presents shall come, Greeting:

This is to certify that careful search has been made of the digest of this office and no assignment, agreement, license, power of attorney, or other instrument of writing is found of record under or relating to letters patent granted to H. H. Eby, No. 134,790, January 14, 1873, for "cob-carriers for corn-shellers."

In testimony whereof I, W. H. Doolittle, acting Commissioner of Patents, have caused the seal of the Patent Office to be hereunto affixed this twelfth day of March, in the year of our Lord one thousand eight hundred and seventy-seven, and of the Independence of the United States the one hundred and first.

[SEAL.] W. H. DOOLITTLE,
Acting Commissioner.

(Endorsed:) 33–45. (Patent Office, Mar. 16, 1877, U. S. A.) Class 130.

231 Room No. 41. C.

DEPARTMENT OF THE INTERIOR,
U. S. PATENT OFFICE,
WASHINGTON, D. C., *April* 11, 1877.

Cob-carrier for corn-shellers. Filed Mar. 20, '77. Reissue of patent 134,790.

Henry H. Eby, care Geo. W. Dyer and Co., present:

First claim in above case is rejected upon English patent of Brinsmead, 2373 of 1861, Fig. 31. The combination of the legs with elevator is the same, whatever the adjustment of which the latter is capable.

Second claim is, however, fully met in English patent 312 of 1868.

Third in last reference in patent of Crandall, Dec. 31, 1867, 72811, "corn-harvesters," and in patent of Bryan, Aug. 3, 1871, 117,736, "straw-carriers."

Fourth is rejected upon Crandall, above.

Fifth, upon Crandall, above, and Nimbs, Aug. 12, 1862, 36193, "grain-conveyers."

Sixth, upon same references.

J. G. PARKINSON, *Ex.*

(Endorsed:) 33–45. Office letter. H. H. Eby, Ap'l 11, 1877. (Reissue.) Class 130.

232 To the Comm'r of Patents.

SIR: In the matter of my application for a patent for cob-carriers for corn-shellers, filed Mar. 14, 1877, erase claims and insert:

A.
Erase & insert
C, June 29, 1877.

1st. A carrier for shelling machines wherein the carrying frame is supported at its inner end upon a revolving block and at its outer end by adjustable legs and the endless belt is driven by a system of cog gearing applied at the inner end thereof whereby the said carrier may be adjusted vertically and horizontally without interfering with or stopping the operation of the endless belt substantially as described.

2nd. In a carrier for shelling machines substantially as described, the carrying frame supported at its inner end upon a revolving block, in combination with the central vertical shaft and its connections, whereby the said carrier may be adjusted vertically and horizontally without interfering with or stopping the operation of the endless belt, substantially as described and shown.

In specification erase, commencing with the 11th line of 2nd page, through the 5th line of 3rd page and insert:

And my invention therein consists in mounting the carrying frame upon a revolving block at its inner end and upon adjustable legs at the outer end and driving the endless belt by cog gearing applied at the inner end thereof and further
B. in the combination with such parts of the central ver-
233 tical shaft and its connections for transmitting power from a pulley to the inner end of the endless belt, all as fully hereinafter described, for effecting the purpose before explained.

Respectfully,

H. H. EBY,
By GEO. W. DYER & CO., *Att'ys.*
W.

April 14, 1877.

(Endorsed:) No. 2. 33–45. Ex. room 41. Amendment- A B. Reissue. Henry H. Eby, Ap'l 14, 1877. (Patent Office, Apr. 14, 1877, U. S. A.) Class 130.

[Matter enclosed between rules erased in copy.]

Room No. 41. C.

DEPARTMENT OF THE INTERIOR,
UNITED STATES PATENT OFFICE,
WASHINGTON, D. C., *June* 9, 1877.

Cob-carriers for corn-shellers. Filed M'ch 20, '77. Reissue old patent 134,790, Jan. 14, '73.

H. H. Eby, care Geo. W. Dyer and Co., present:

The claims presented in above case are fully met in former references. It makes no difference that the elevator here is used for elevating corncobs and the references chiefly for elevating grain and straw, the change from one purpose to another involved simply a change in pockets or surface and is every day practiced.

J. G. PARKINSON, *Ex.*

(Endorsed:) No. 3. 33–45. Office letter. Henry H. Eby, June 9, 1877. Reissue. Class 130.

234 To the Comm'r of Patents.

SIR: In the matter of my application for reissue of a patent for cob-carriers for corn-shellers, filed Mar. 14, 1877—

Erase claims and insert:

C.
Erase & insert
D, July 30, 1877.

1st. A movable independent cob-carrier, wherein are combined a supporting and revolving block, a carrying frame whose inner end is supported upon said block, supporting adjustable legs for the outer end of said carrying frame and a system of gearing connected and applied at the inner end of such carrier to drive an endless belt, substantially as and for the purposes set forth.

cob-carrier wherein are combined a*

2nd. A movable independent A carrying frame supported at its inner end upon a revolving block, and the central vertical shaft and its connections whereby the said carrying frame can be adjusted vertically and horizontally without stopping the operation of the endless belt, substantially as and for the purposes set forth.

Respectfully, HENRY H. EBY,
By GEO. W. DYER & CO., *Att'ys.*
W.

June 29, 1874.

(Endorsed:) No. 4. 33–45. Amendment C. H. H. Eby, June 29, 1877. (Reissue.) (United States Patent Office, Jun- 29, 1877.) Class 130.

[* In pencil in copy.]
[Matter enclosed between rules erased in copy.]

235 Room No. 41. C.

DEPARTMENT OF THE INTERIOR,
UNITED STATES PATENT OFFICE,
WASHINGTON, D. C., *July* 26, 1877.

Cob-carriers for corn-shellers. Filed M'ch 20, '77. Reissue patent 134,790, Jan. 14, '73.

Henry H. Eby, care Geo. W. Dyer and Co., present:

First claim is again rejected upon English patent of Brinsmead, 2373 of 1861, Figs. 1 and 2. The fact that the elevator is detached does not make any substantial difference, as elevators of various kinds have long been used in the arts in detached form.

J. G. PARKINSON, *Ex.*

(Endorsed:) No. 5. 33–45. Office letter. H. H. Eby, July 26, 1877. (Reissue.) Class 130.

Hon. Comm'r of Patents.

SIR: In the matter of my application for a patent for cob-carriers, filed M'ch 14, '77—

Erase 1st claim and insert:

D.
Erase and insert E, Aug. 6, '77.

"First. A movable independent cob-carrier, wherein are combined a supporting and revolving block, a carrying frame whose inner end is supported upon said block, supporting adjustable legs for the carrying frame, free at their lower ends, and gearing connected and applied at the inner end of said carrying frame to drive an endless belt thereon, the several parts constructed, arranged, connected, and operating substantially as described."

236

It is respectfully submitted that while this claim embraces the same elements as the previous claim, it is more restricted and applies to the particular construction employed by applicant.

It is also respectfully urged that while the reference may possibly have the same elements or their equivalents, these elements are of quite a different construction, and the whole apparatus is a different apparatus, that of applicant being much cheaper and more simple.

The reference has no supporting and revolving block, but has a T iron segment of a circle, which can hardly be considered an equivalent, as it is incapable of performing one of the functions of a block, viz., the capacity to use a central shaft or bolt.

[Matter enclosed between rules erased in copy.]

The supporting legs of the reference are telescopic pipes having an adjustment vertically and required to be secured at the bottom by attachment, and are hardly the equivalent of the applicant's supporting legs, which are pivoted and adjusted by changing the angle of their inclination. The gearing of applicant and also his carrying frame differs quite widely from that of the reference, requiring the shifting of the driving pinion from one side to the other. It is suggested that the courts have not yet applied the doctrine of equivalents to descriptions set up to defeat existing patents, and upon a reissue which cannot be met by a living United States patent it does not seem equitable or lawful to give a description in a book which requires the invocation very broadly of equiv-
237 alents to make it an apparent answer.

The gist of applicant's invention is a carrying frame which can be raised or lowered or moved around the segment of a circle without interrupting its carrying action. The reference will not do this. A re-examination is asked.

Respectfully, HENRY H. EBY,
By GEO. W. DYER & CO., *Att'ys*,
Per W.

July 30, 1877.

(Endorsed:) No. 6. 33–45. 41. Amendment D. Letter to office. H. H. Eby, July 30, 1877. (United States Patent Office, July 30, 1877.) Class 130.

Room No. 41. C.

Cob-carriers for corn-shellers. Filed M'ch 20, '77. Reissue patent 134,790, Jan. 14, '73.

H. H. Eby, care Geo. W. Dyer & Co., present:

Present first claim is still rejected upon former references. The capability of having a central shaft is not a result, but a feature of construction, and is fully covered in the claim allowed. The swinging legs are common means of adjustment for elevators. The block in reference, being circular, has a central point & therefore affords the same facilities as does applicant's for use of a central shaft. The elevators in reference- *is* driven from gearing at the foot, as with applicant. It is possible that Eby is entitled to claim his
238 devices in combination with gearing applied at the inner end and capable of acting continuously, whether the elevator is fixed in position or being swung to a new position. Such a device does not appear to be shown by references.

J. G. PARKINSON, *Ex.*

(Endorsed:) No. 7. 33–45. Office letter. H. H. Eby, Aug. 2, 1877. (Reissue.) Class 130.

To the Commissioner of Patents.

SIR: In the matter of the application of Henry H. Eby for a patent for cob-carrier for corn-sheller, filed Mar. 14, 1877, erase 1st claim and insert:

1st.* A movable independent cob-carrier wherein are combined a supporting and revolving block, a carrying frame, whose inner end is supported upon said block, and whose outer end is supported upon movable legs, and gearing applied at the inner end of the carrying frame and capable of acting continuously, whether the carrying frame is fixed in position or being swung to a new position, substantially as described.

E.

Respectfully, GEO. W. DYER & CO.,
Att'ys for Eby,
Per WARREN.

August 6, 1877.

(Endorsed:) No. 8. 33–45. Examiner's room 41. Amendment E. Henry H. Eby, Aug. 6, 1877. United States Patent Office, Aug. 6, 1877. Class 130.

239 33–45. 1877.

Reissue No. 7851.
Henry H. Eby,
Of Mendota,
County of La Salle,
State of Illinois.
Cob-carriers for corn-shellers.

Rec'd	March	14,	1877.
Petition,	"	20,	"
Affidavit,	"	"	"
Specification,	"	"	"
Drawing,	"	14,	"
Abstract of title,	"	16,	"

Old patent No. 134,790, Jan'y 14, 1873.
Cert. dep., ——.
1. Cash, $30, March 14, 1877.
Examined Aug. 16, '77. J. G. Parkinson.
2. Issue, Aug. 17, '77. F. A. Seely.
4. Patented January 14, 1873.
Reissued Aug. 21, 1877.
Circular, Aug. 17, 1877.
Geo. W. Dyer & Co., present.

240 1877.

Contents.

Application papers.
1. Rejection, Ap'l 11, 1877.
2. Amendment, Ap'l 14, 1877.
3. Rejection, June 9, 1877.

[*In pencil in copy.]

4. Amendment, June 29, 1877.
5. 2 rejection, July 26, 1877.
6. Amendment, July 30, 1877.
7. Rejection, Aug. 2, 1877.
8. Amendment, Aug. 6, '77.
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Title: Improvement in cob-carriers for corn-shellers.
Ex'd: E. A. M.
H. M. H.

H. H. EBY.

COB-CARRIERS FOR CORN-SHELLERS.

No. 7,851. Reissued Aug. 21, 1877.

No. 336
Eby
v.
King et al.
} p. 241

Fig. 1.

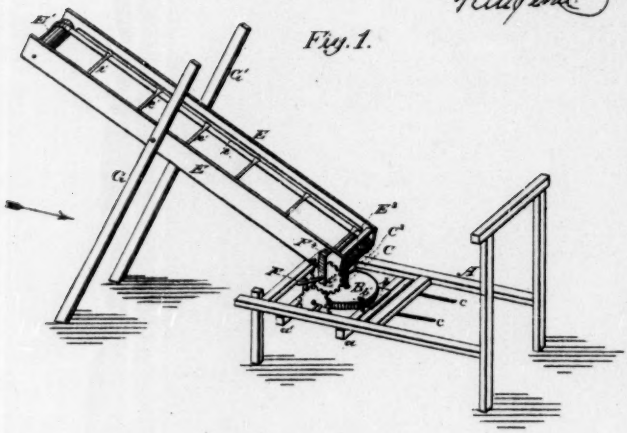


Fig. 2.

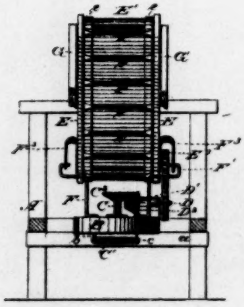


Fig. 3.

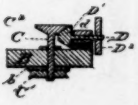
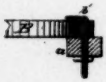


Fig. 4.



Attest:
R. F. Dyer
Geo. C. Tracy

Inventor:
Henry H. Eby
by Geo. W. Dyer & Co
Attys.

242 UNITED STATES PATENT OFFICE.

HENRY H. EBY, of Mendota, Illinois.

Improvement in Cob-carriers for Corn-shellers.

Specification forming part of Letters Patent No. 134,790, dated January 14, 1873; Reissue No. 7851, dated August 21, 1877; application filed March 20, 1877.

To all whom it may concern:

Be it known that I, Henry H. Eby, of Mendota, in the county of La Salle and State of Illinois, have invented an improvement in cob-carriers for corn-shellers, of which the following is a specification:

The object of my invention is the production of a cob-carrier for power corn-shellers, to receive the cobs from the spout of the sheller and deliver them in any desired direction, which is adapted to be adjusted both vertically and horizontally upon its supporting-frame and driving mechanism without interfering with or stopping its operation; and my invention therein consists in mounting the carrying-frame upon a revolving block at its inner end and upon adjustable legs at the outer end, and driving the endless belt by cog-gearing applied at the inner end thereof; and further, in the combination, with such parts, of the central vertical shaft and its connections for transmitting power from a pulley to the inner end of the endless belt, all as fully hereinafter described, for effecting the purpose before explained.

To enable others skilled in the art to manufacture and use my invention, I proceed to describe the same, having reference to the drawings, in which—

(Here follows diagram marked p. 241.)

Figure 1 is a perspective view of the machine; Fig. 2, an end elevation looking in the direction of the arrow in Fig. 1, with a part of the supporting-frame removed, and the pivoted supports broken away to show the operating mechanism; Fig. 3, a sectional view of a part of the operating mechanism; and Fig. 4, a view of one of the hook-bolts for guiding and holding the revolving block.

Like letters denote corresponding parts in each figure.

A represents a proper frame-work for supporting the operating parts of the machine, upon the cross-pieces *a a'* of which is mounted a disk or block, B. This block may rest upon a plate or support, *b*, connecting the cross-pieces *a a'*, and is held in position and guided by any suitable number of hook-bolts, *b'*, secured in the frame and having their upper ends turned over the block, which allow it to be revolved easily in either direction. A vertical shaft, C, passes loosely through the plate *b* and the center of the block B, and is provided on its lower end, below such plate, with a suitable

pulley, C^1, around which a belt, *c*, passes for driving the operating mechanism. This shaft C projects above the block B, and a bevel-gear wheel, C^2, is keyed on its upper end. D is a short horizontal shaft, which is supported on one side of the movable block B in a standard, *d*. The inner end of this shaft has a bevel-gear wheel, D^1, which meshes with the bevel-gear C^2 on the vertical shaft C, and the outer end is provided with a spur-wheel, D^2. E is the carrying spout or frame, of any proper form, having at its upper and lower ends the rollers E^1 E^2, around which the endless carrying-belts *e e* extend, provided with suitable cross-slats *e'*.

The inner or lower end of the carrying-frame is supported by arms F F^1, which rise from the block B, to which they are rigidly secured, and are pivoted to hangers F^2 F^3, attached to the sides of such carrying-frame. The shaft of the roller E^2 is extended through one side of the carrying-frame, and a cog-wheel, E^3, is keyed thereon, which meshes with the cog-wheel D^2 on the horizontal shaft D. The arms F F^1 are pivoted to the hangers F^2 F^3 on the line of the shaft of the roller E^2, so that the outer end of the carrying-frame can be raised or lowered to any desired extent without throwing the cog-wheels D^2 and E^3 out of gear, and without affecting in the least the operation of the endless belt.

To the sides of the carrying-frame, at any desired point, are pivoted the supporting-legs G G', which support the outer or upper end of such carrying-frame. By means of these pivoted supports the outer end of the carrying-frame is adapted to be raised or lowered and supported at any desired elevation.

In operation, the carrying-frame is located with reference to the corn-sheller in such manner that the cobs can be discharged upon the lower end of the endless belt. Motion being communicated to the pulley C^1, the endless belt is operated through the gearing described, and the cobs moved to and thrown from the outer or upper end of the carrying-frame. The cobs are delivered into a wagon driven under the end of the carrier, or into any proper stationary or removable receptacle.

243 When desired to turn the carrying-frame to either side, to deliver the cobs in any other direction or into other receptacles, the outer end is moved bodily around, which moves the block B and the gearing, and the hook-bolts *b'* may then be tightened up to hold the parts more rigidly in their new position.

By means of the devices for supporting the carrier and the gearing for driving the endless belt at the inner end of the carrying-frame, any extent of movement of such carrying-frame is permitted without stopping the operation of the endless belt, and this movement is effected with but little inconvenience and delay. The changing of the direction of the carrying-frame both vertically and horizontally could not be performed with as great facility if the endless belt were driven otherwise than at its inner end, where the least movement is made, or if the said carrying-frame were supported by less efficient means than those described.

Having thus described my invention and explained some of its

advantages, what I claim as new, and desire to secure by letters patent, is—

1. A movable independent cob-carrier wherein are combined a supporting and revolving block, a carrying-frame whose inner end is supported upon said block, and whose outer end is supported upon movable legs, and gearing applied at the inner end of the carrying-frame and capable of acting continuously, whether the carrying-frame is fixed in position or being swung to a new position, substantially as described.

2. A movable independent cob-carrier wherein are combined a carrying-frame supported at its inner end upon a revolving block, and the central vertical shaft and its connections, whereby the said carrying-frame can be adjusted vertically and horizontally without stopping the operation of the endless belt, substantially as and for the purposes set forth.

This specification signed and witnessed this 27th day of January, A. D. 1877.

HENRY H. EBY.

Witnesses:
FREDRIC WORSLEY.
H. HARRINGTON.

244 "DEFENDANTS' EXHIBIT COMPARISON OF COMPLAINANT'S ORIGINAL AND REISSUED SPECIFICATIONS." Charles H. Roberts, Notary Public.

(Sec. 5.) *a a a* represent a suitable framework for supporting the operating parts of the machine. *b* represents a disk or block, resting upon proper bearings upon the framework *a*, provided with a central orifice, through which passes a shaft, b^1, provided at its lower end with a pulley b^2, and its upper end with a bevel-gear wheel b^3, as shown.

(Sec. 6.) *c* represents a pinion attached to the inner end of a short horizontal shaft resting in proper bearings on the block *b*, the outer end of which is provided with a gear wheel c^1.

(Sec. 7.) D represents the carrier-frame, constructed generally in any proper manner, and provided with the endless belts *d d*, having suitable cross-slats, and the pivoted supports d^1 d^1, which support the outer end. The inner end of the carrier-frame is pivoted to arms *e e* rising from the block *b*, as shown. (See also reissue, sec. 9, 10.)

(Sec. 8.) d^2 represents a gear wheel attached to the shaft of the lower pulley of the endless belts of the carrier, which wheel engages with the gear wheel c^1, as shown.

(Sec. 9. See reissue, sec. 5.) *m m* represent bolts secured in the framework, the upper ends of which are turned over the block *b*, as shown.

245 (Sec. 10.) The manner of using my invention will now be described. It being located in reference to the corn-sheller in such manner that the cobs from the latter can be discharged upon the carrier, power is communicated to it from the sheller by

means of a belt which runs about the pulley b^1. By this means motion is communicated, through the connections described, to the endless belt, which carries off the cob. (b^1 should be b^2.)

(Sec. 11.) The carrier may be turned for the purpose of discharging the cobs in any desired direction (by revolving the block *b*, which supports the carrier-frame and the main portion of the actuating devices upon its bearings, it being secured in any desired position by means of the hook-bolts *e e*).

(Sec. 12.) The described construction has been found in practice to be well adapted for the purpose for which it is designed.

(Sec. 13.) Having thus fully described my invention, what I claim as new and desire to secure by letters patent is:

1. The combination of the block *b*, adapted to revolve as described and the hook-bolts *e e*, for supporting a carrier, as described. (*e e* should be *m m*.)

2. (The combination of the block *b* and the central vertical shaft and its connections, substantially as described.)

3. The combination of the framework *a a a*, block *b*, the central vertical shaft b^1, pulley b^2, gear wheel b^3, horizontal shaft with pinion *c* and gear wheel c^1, carrier-frame D, having belts *d d*, supports d^1 d^1, gear wheel d^2, arms *e e*, and bolts *m m*, arranged as and for the purpose described.

246 (Sec. 5.) A represents a proper framework for supporting the operating parts of the machine, upon the cross-pieces *a a'*, of which is mounted a disk or block B. This block may rest upon a plate or support, *b*, connecting the cross-pieces *a a'* and is held in position and guided by any suitable number of hook-bolts, *b'* secured in the frame and having their upper ends turned over the block, which allow it to be revolved easily in either direction. A vertical shaft C, passes loosely through the plate *b* and the center of the block B, and is provided on its lower end below such plate, with a suitable pulley, C^1, around which a belt *c*, passes for driving the operating mechanism. This shaft C projects above the block B, and a bevel-gear wheel C^2, is keyed on its upper end (see also original sec. 9).

(Sec. 6.) D is a short horizontal shaft, which is supported on one side of the movable block B, in a standard *d*. The inner end of this shaft has a bevel-gear wheel D^1 which meshes with the bevel gear C^2 on the vertical shaft C, and the outer end is provided with a spur wheel, D^2.

(Sec. 7.) E, is the carrying spout or frame, of any proper form, having at its upper and lower ends the rollers E^1 E^2 around which the endless carrying belts *e e* extend, provided with suitable cross-slats *e'*. The inner or lower end of the carrying frame is supported by arms F F^1 which rise from the block B, to which they are rigidly secured, and are pivoted to hangers F^2 F^3 attached to the sides of such carrying frame.

247 (Sec. 8.) The shaft of the roller E^2 is extended through one side of the carrying frame, and a cog wheel E^3 is keyed thereon, which meshes with the cog wheel D^2 on the horizontal shaft D.

(Sec. 9. See original sec. 7.) The arms F F^1 are pivoted to the hangers F^2 F^3 on the line of the shaft of the roller E^2 so that the outer end of the carrying frame can be raised or lowered to any desired extent without throwing the cog wheels D^2 and E^3 out of gear and without affecting in the least the operation of the endless belt.

(Sec. 10. See original sec. 7.) To the sides of the carrying frame at any desired point, are pivoted the supporting legs G G′ which support the outer or upper end of such carrying frame. By means of these pivoted supports the outer end of the carrying frame is adapted to be raised or lowered and supported at any desired elevation.

(Sec. 11.) In operation, the carrying frame is located with reference to the corn-sheller in such manner that the cobs can be discharged upon the lower end of the endless belt. Motion being communicated to the pulley C^1 the endless belt is operated through the gearing described and the cobs moved to and thrown from the outer or upper end of the carrying frame. The cobs are delivered into a wagon driven under the end of the carrier or into any proper stationary or removable receptacle.

(Sec. 12.) When desired to turn the carrying frame to either side to deliver the cobs in any other direction or into other receptacles the outer end is moved bodily around, which moves the block B,
and the gearing and the hook-bolts b' may then be tightened
248 up to hold the parts more rigidly in their new position.

(Sec. 13.) By means of the devices for supporting the carrier and the gearing for driving the endless belt at the inner end of the carrying frame any extent of movement of such carrying frame is permitted without stopping the operation of the endless belt, and this movement is effected with but little inconvenience and delay.

The changing of the direction of the carrying frame both vertically and horizontally could not be performed with as great facility if the endless belt were directed otherwise than at its inner end, where the least movement is made, or if the said carrying frame were supported by less efficient means than those described.

(Sec. 14.) Having thus described my invention and explained some of its advantages, what I claim as new and desire to secure by letters patent is:—

1. A movable independent cob-carrier wherein are combined a supporting and revolving block, a carrying frame whose inner end is supported upon said block, and whose outer end is supported upon movable legs and gearing applied at the inner end of the carrying frame and capable of acting continuously, whether the carrying frame is fixed in position or being swung to a new position, substantially as described.

2. A movable independent cob-carrier wherein are combined a carrying frame supported at its inner end upon a revolving block and the central vertical shaft and its connections whereby the said carrying frame can be adjusted vertically and horizontally without stopping the operation of the endless belt, substantially as and for the purposes set forth.

250 MOSES DAVENPORT, No. 480, November 23, 1837.

Be it known that I, Moses Davenport, of the town of Phillips, in the county of Somerset, and State of Maine, have invented a new and useful improvement in the machine for threshing and cleaning grain, which is described as follows, reference being had to the annexed drawings of the same, making part of this specification.

(Here follows diagram marked p. 249.)

A, Fig. 1, represents the frame of the machine constructed similar to other machines in use, of a suitable size and strength to contain and support the several parts hereafter described.

Fig. 3, B. the threshing cylinder made in the usual manner. C. concave extended in front of the machine in an inclined position, so as to serve as a feeding board, and nearly to the top of the frame at the discharge end, so as to form an inclined conductor for conducting the grain to the elevator hereafter described, the whole being formed of one piece of sheet iron or other suitable material. A. an inclined box containing the elevator,—said box being secured to the frame of the threshing machine at the rear end of the same and extending from the end of the concave to any required distance. E, the elevator just mentioned, constructed by passing several parallel endless straps around two rollers R. R. Fig. 3, both turning on gudgeons—one at each end of the inclined box, to which straps and at right angles to the same, are fastened a series of parallel slats or bars of wood for conveying the straw to the discharging end of the box. The two
251 side straps are placed edgewise and are nailed to the ends of the slats to form a ledging for preventing the straw falling down between the sides of the box and the elevator. Between the slats may be placed a number of parallel strips of leather, or pieces of wood so as to form meshes or spaces of about half an inch for allowing the grain to fall through upon an inclined board below, and at the same time retain the straw upon the elevator which discharges it at the upper end thereof. F. the inclined board just mentioned; this is placed below the elevator, at the bottom of the box, and extends from the end of the frame of the threshing machine nearly to the upper roller; its upper surface lies parallel with the endless elevator and below it as far as the thickness of the slats or elevators which on their return touch this inclined board.

These slats should be about two or three inches wide or of any proper width, to allow of sufficient space between the outer surface of the endless straps and the upper surface of the inclined board to receive the grain which falls through the meshes of the straps and slats. G. slides in which the gudgeons of the upper roller turn, for tightening the straps.

H. Fig. 2, screens; I. fan. Fig. 3, J. fan case. K. L. & M. Fig. 1, pulleys and band for turning the elevator. N. O. pulley and band

M. DAVENPORT.

Grain Thrasher and Cleaner.

No. 480. Patented Nov. 23, 1837.

No. 336 } p. 249
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Fig: 1.

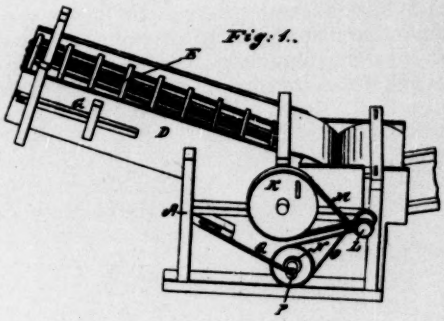


Fig: 2.

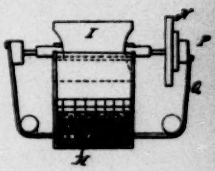
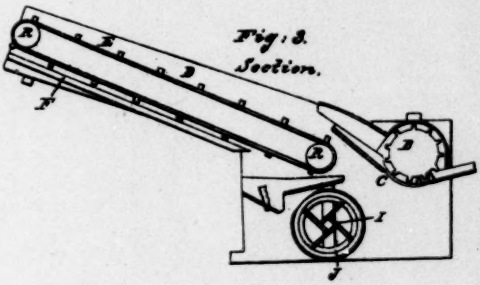


Fig: 3.
Section.



for turning the fan. Fig-. 1 & 2, P. Q. crank and strap for shaking the sieves, a similar crank and strap being placed on the opposite side of the machine.

252 On the opposite end of the threshing-cylinder shaft from that on which is placed pulley L. is another pulley around which passes a band leading to the horse power for working the machine. A polygonal roller may be placed inside the elevator for shaking it.

Operation.—The machine being set in motion, the bundles of straw are united and laid upon the inclined or feeding part of the concave, with the heads toward the threshing cylinder, between which and the concave it is received, threshed and thrown with the grain, upon the elevator, which conveys the straw to the upper end of the inclined box, where it is discharged. The grain falling through the meshes or spaces of the elevator upon the inclined board below, where it is met by the slats or bars and carried back toward the threshing cylinder, and falls upon the vibrating screens, where it is cleaned of all dust or dirt by the revolving fan placed below the screens. The dirt being driven out at the end of the machine, whilst the cleaned grain is received in a box placed below the screens.

The invention claimed by me, the said Moses Davenport, and which I desire to secure by letters patent, consists in the combination of the endless revolving elevator with the inclined board which conveys the grain to the fan placed below the threshing cylinder in the manner before described.

MOSES DAVENPORT.

Witnesses:
WM. P. ELLIOT.
WM. BISHOP.

254 PIERSON READING, # 2266, September 25, 1841.

Be it known that I, Pierson Reading, of Batavia, in the county of Clermont and State of Ohio, have invented an improvement in the machine for shelling corn which is described as follows, reference being had to the annexed drawings of the same making part of this specification, of which

(Here follows diagram marked p. 253.)

Fig. 1 is a top view of the machine.
Fig. 2 is a side elevation.
Fig. 3 face of the shelling wheel.
Fig. 4 section of the corn-elevator.
Fig. 5 hinge, cord, weight, and pulley.
Fig. 6 section of the cob-conveyer.
Fig. 7 is a top view of the spring, the cap D being removed.

Similar letters refer to corresponding parts in the several figures.

The frame A is made of sufficient size and strength to receive the different parts of the machinery hereafter described. It is composed of two side pieces 1 1, two cross-pieces 2 2, with tenons passing through the side pieces secured by pins and standing on four legs 3, being fixed in the position of the inclined plane, to effect which the hind legs 3 are made shorter than the fore legs 3′.

The sheller B is a cast-iron circular plate about two feet nine inches diameter and scant half inch thick, placed in a vertical position on a shaft S passing through the center with turned
255 gudgeons at the ends inserted in metal boxes in the frame A. On this shaft are placed three pulleys *p o k* giving motion to the other parts of the machine hereafter described. The shelling plate B on its face or side next the spring *c* has teeth of two different kinds; one kind lettered *a* are for shelling off the corn, the others *b* are for propelling the ears forward and are so constructed and placed in an oblique position that they pass the ears forward whilst the operation of shelling is going on by the other teeth. The shelling teeth *a* are three-eighths of an inch thick at the base and project three-eighths of an inch from the face of the wheel and terminate in a point and are placed in concentric circles three-quarters of an inch asunder except where they give place to the carrying teeth *b*. One set of the carrying teeth *b* are placed near and around the center of the wheel and are eight in number placed equidistant on straight lines radiating from the center toward the circumference. The length of each of these carrying teeth is one and a half inch and projects three-eighths of an inch from the face of the wheel, and are nearly perpendicular on their front side. The opposite side is beveled or sloped. Another set of teeth *d* is arranged in a circle near the verge three-quarters of an inch asunder and in an oblique position or on chord lines. There are four other sets or rows, b^4 b^5 b^6 b^7, placed at equal distances apart

P. READING.

Corn Sheller.

No. 2,266. Patented Sept. 25, 1841.

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Fig. 7.

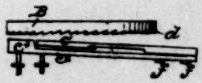


Fig. 3.

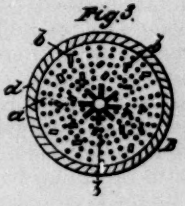


Fig. 1.

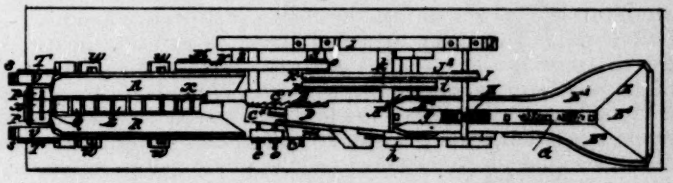


Fig. 6.

Fig. 2.

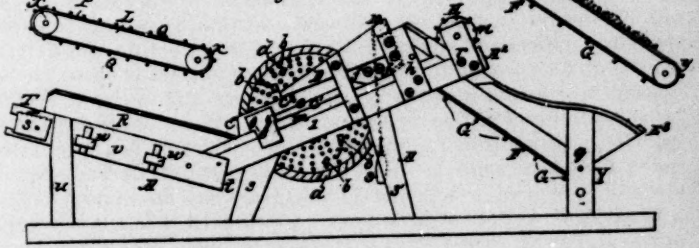
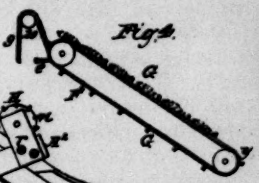


Fig. 4.



beginning at or near the eight teeth before described
* See note.† about the center and continued * to those at the circumference *d*, verging the right lines in a spiral
256 direction, each tooth having the same obliquity as those at the verge, and the same length.

Two springs c', c^2 are used to press the ears against the shelling wheel, by which means two ears can be shelling at the same time. They are united together by screws *f* at one end; the opposite ends separate and are apart about one inch, the outer spring c^2 extends beyond the other c' at the upper end about five inches where it has an enlarged form c^4 so as to correspond with the inner surface of the other spring c'. Near the end where they are united a screw-bolt *p* and nut fastens them on the upper side of the frame near the elevated end, leaving a space between the sheller B and spring *c* sufficient for the ears to pass down the inclined plane *m* where they come in contact with the teeth *a b*. The springs approach the teeth at the lower end more than at the upper in order to prevent the ears from passing out from the space between the sheller and springs before the corn is shelled from the cob. The springs yield to accommodate the different-sized ears admitted, and are made to act with more or less effect by means of screws *e e* and *f f* at each end. Upon and over these springs there is placed a cap D to guide and give the ears their proper direction and prevent them from being thrown up out of the space between the sheller and springs.

A hopper E in the position of the inclined plane is attached to the elevator and A^2 of the frame A having sides E^2 and end E^3 sloping inward large enough at the lower end to contain
257 several bushels of corn, the upper portion having a diminished form as at E^4 open at the bottom between the sides forming a space *z* about two and a half inches wide under which and against the hopper passes a leather endless belt F about four inches wide revolving over two pulleys Y having iron shafts and turned gudgeons one pulley being at the upper end of the hopper the other at the lower. The gudgeons of the upper shafts are inserted in posts *h* fastened to and projecting upwards from the sides of the frame, having on said shaft one other pulley *i* over which a belt *k* passes to a pulley *p* on the shaft of the revolving sheller B. The gudgeons of the lower shaft are inserted in posts *q* on which the hopper is fixed and supported. To the belt is fastened at intervals projecting irons G for the purpose of taking hold of the ears of corn as the belt revolves and cause them to move forward and be delivered to the sheller. Near the upper end of the hopper is placed a revolving wheel H with irons *n* projecting from its periphery for the purpose of striking against the ears of corn to adjust them having an iron shaft the gudgeons of which are inserted in posts and projecting upward from the frame A on which shaft there is a pulley I over which a belt J passes to a pulley K on the shaft of the sheller B giving rapid motion to the wheel H the irons of which strike the corn and drive back the surplus ears admitting only one

[† In pencil in copy.]

to pass at the same time underneath the said wheel H on the inclined plane. Where the corn enters the space there is fixed a hinge *l* yielding occasionally to the cobs or ears to let the
258 belt F and irons pass freely and then returning to its former position which is effected by means of a weight 8 and cord 9 and pulley 10.

A cob-carrier L is placed in front of the sheller in an inclined position inclining upward from the frame A to receive the cobs, one end is attached to the lower end of the frame A of the machine, the other end is elevated and supported by posts *u*. Its frame is composed of two side pieces V V and two cross-pieces *w w*, the cross-pieces having tenons passing through the side pieces and secured by keys 11, 11.

Two rollers *x x* with gudgeons in their ends are placed in this frame near each end; the lower roller has a gudgeon of sufficient size to receive a pulley *m* on the outer side of the frame over which passes a belt N communicating with a pulley *o* on the shaft of the revolving sheller B. Belts P P pass over those rollers near their ends to which are fastened at intervals transverse parallel iron rods Q of large wire leaving spaces between them sufficient for the corn to pass through but not the cobs. These are to be conveyed off at the rear. Additional side pieces R or guards are placed on the upper parts of the other side pieces V to guide and direct the cobs, the endless revolving belts P P are adjusted or tightened by means of movable or sliding racks or blocks S and stops or pawls T turning on pins inserted into the sides of the upper ends of the side pieces V in which the gudgeons of the upper rollers are inserted.

By detaching the feeder and cob carrier and adding a
259 crank and two cog wheels to give it the requisite motion this combination then forms a good hand machine.

Manner of using the machine.—The machine is put in operation by horse power, water power, or any other appropriate power and when in motion the corn to be shelled is put in the hopper E the irons on the belt F take hold of the ears and carry them up to the opening between the springs and the sheller when they fall and pass down the inclined plane *m* of the frame until they come within reach of the teeth of the sheller B when the corn is stripped from the cobs by the teeth *a* whilst the teeth *b* turn the cobs and urge them forward down the inclined plane and out from between the springs and shell and pass them on to the cob-conveyer which conveys them off at the rear whilst the corn falls down through the spaces between the bars of the conveyer and the space between the sheller and inclined plane.

What I claim as my invention and which I desire to secure by letters patent is

1st. The arrangement of the endless inclined feeding belt with iron plates fixed thereto in combination with the upward inclined hopper and the revolving spur wheel turning in said hopper for adjusting the ears so as to cause them to approach the sheller endwise, and these in combination with the sheller B and double

springs c' c^2 for shelling several ears at the same time and the endless open cob-conveyed as described.

2nd. The arrangement of the hinged shutter at the head of the inclined plane for yielding to an accumulation of ears so as to permit the endless conveyer F to work freely as described.

3rd. The arrangement of the oblique teeth *b* on the face of the sheller B for giving the ears a forward and progressive movement whilst the teeth *b* give them a rotary motion and shell the corn as described in combination with the teeth *a* as herein set forth.

PIERSON READING.

Witnesses:

DAN. S. LYMAN.
THOS. S. BRYAN.

262

117,736.

UNITED STATES PATENT OFFICE.

RICHARD BRYAN, of Penn Yan, New York.

Improvement in Grain-thrashers and Straw-carriers.

Specification forming part of Letters Patent No. 117,736, dated August 8, 1871.

To all whom it may concern:

Be it known that I, Richard Bryan, of Penn Yan, in the county of Yates and State of New York, have invented certain improvements in grain-thrashers and straw-carriers, of which the following is a specification:

The nature and object of my invention consist in making a grain-thrasher that will clean grain fit for market with less sieves, and they in less space than heretofore used, and actuating the sieves, one upward and downward for chaffing, others inclined with a reciprocating motion; and arranging and supporting a straw-carrier by the thrasher, so that it may be turned around to either side or in any direction, and be driven by the same mechanism; and it is supported by a rope in any required position.

(Here follows diagram marked p. 261.)

Figure 1 is a side elevation of that part of a thrasher embodying my invention. Fig. 2 is a longitudinal vertical section showing the sieves and mechanism that actuate them.

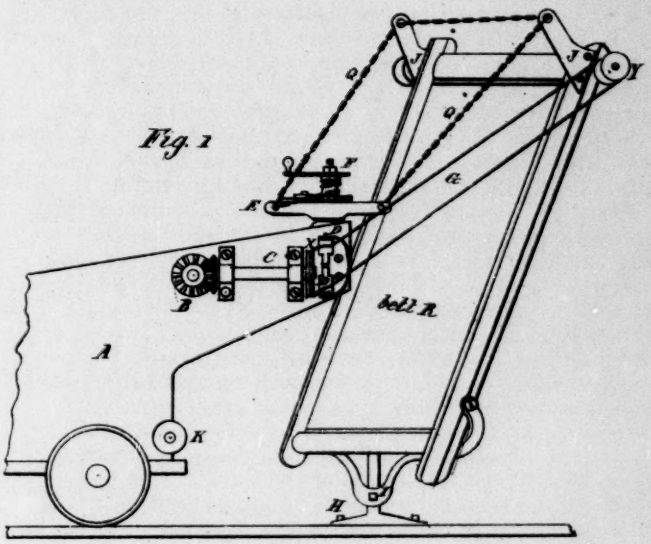
A is the rear end of a grain-thrasher, (the other parts being of ordinary construction are left off.) The exterior is represented in Fig. 1. The interior must be made to receive the sieves, as many as required, and the ordinary fan and conveyers, together with the means to actuate them. It is represented as mounted on wheels for transportation, and it is generally used upon them; therefore, the whole is represented as standing upon a barn-floor. B is a shaft that is put through the thrasher and is supported by journal-boxes at the sides of the thrasher. The ends extend out from the thrasher to receive a miter or bevel-wheel and a driving-pulley at each end, so that the driving-pulley may be put on either end, as may be most convenient with respect to the other parts of the thrasher that drives it. C is a horizontal shaft, placed by the side of the thrasher and held by journal-boxes, as shown in Fig. 1. There is a corresponding shaft upon the opposite side of the thrasher. There is a miter-wheel at one end of each, that is driven by the miter-wheels on the shaft B. At the other end of each is a pulley, made to carry a rope or chain that drives the straw-carrier. D is a pair of directing-rollers, both being supported on the same axis and by the same support, which may be made adjustable and attached to the side of

RICHARD BRYAN.

Grain Thresher and Straw Carrier.

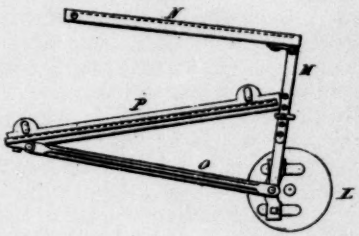
No. 117,736. Patented August 8, 1871.

Fig. 1



No. 336 Eby & Knight p 284

Fig. 2



Witnesses

John L. Lewis

Charles Hostchum

Inventor

Richard Bryan.

the thrasher, as represented in Fig. 1. There is a corresponding pair of rollers at the opposite side of the thrasher. Their use is to change the direction of the rope or chain that drives the straw-carrier in any direction at either side of the thrasher. E is a piece of timber that is supported by a pivot that passes up through the middle of it, so that it may turn as the straw-carrier is turned. At each end is a hole for a rope to pass through to support the straw-carrier. A pulley may be put in one end when desired. F is a windlass. It is made as represented in Fig. 1, and placed upon the pivot above the part E. It is provided with a winch at the upper end, and at the lower end a ratchet and pawl to hold it in any position. Its use is to wind up the rope that holds up the straw-carrier. The pivot that supports it is attached to the upper side and rear end of the thrasher, as represented in Fig. 1. G is the straw-carrier. It is of ordinary construction, and may have slatted belt or apron to move the straw. The shaft at the upward end that carries the roller must extend out at each side to carry a pulley for the rope or chain to drive it. H is a pivot that supports the straw-carrier. It is made with a base that has holes through it so that it may be bolted to the barn-floor, or any other place, as represented in Fig. 1. I are the arms that support the straw-carrier. They may be made of iron. They extend from their union at the pivot H to each side of the straw-carrier, and are there fastened by a pin or bolt that will allow the straw-carrier to be raised or lowered at the outer end. The arms must be so shaped that they may be folded to the under side of the carrier for transportation. They have a piece connecting them underneath the carrier, and this piece has a hole for the upper end of the pivot H to go through to hold the arms in a vertical position. At the hole where the arms are united is a set-screw to hold the arms and prevent them turning when in use, thus holding the straw-carrier in any required position. J and J are posts fastened to each side of the upward end of the carrier. They have a hole in the upward end for a rope to pass through, and they must be long enough for the straw to pass under the rope between them. K is a pulley that is fastened at the other end of the shaft that the crank-wheel L is fastened to. It is driven by any convenient part of the thrasher, and may be placed at either side of the thrasher that is most convenient to actuate the sieves or be
263 driven. Its use is to actuate the sieves by turning the crank-wheel L. L is a crank-wheel that actuates the sieves. It is made any size required. It has through it two parallel mortises for bolts, situated in the chord of the circle of the wheel, and extends so far across the wheel that the crank-pin may be placed at the center or outward radially to give any required motion to the sieves. It is also provided with a crank-pin that has arms with holes through them, so that it may be bolted in any position to the wheel. The crank-pin must be long enough to hold two connections of proper size. M is a connection from the crank-wheel to the sieve N. It must be made in two parts, with a series of holes to bolt them together, so that the length of the connection may be changed to give the required inclination to the sieve for the various kinds and

conditions of grain. N is the upper or chaffing-sieve, made in any ordinary manner. One end is held by pivots at each side of the thrasher, and the other by the connection M, as shown in Fig. 2. O is a connection from the crank-wheel to the screen or lower sieve, as represented in Fig. 2. P is the screen. It is supported in ways that are fastened to the inner sides of the thrasher, and is actuated by the connection O, as shown in the figure. There may be more than one, and they must be made with meshes of different sizes to suit the kind of grain being thrashed. The ways for the sieve P may be made adjustable, when required, by making a series of bolt-holes for their bolts.

I claim as my invention—

1. The straw-carrier G supported upon the pivoted standard H I, arranged to operate in connection with the thrasher A provided with the cross-piece E, windlass F, and rope Q, when said parts are constructed and arranged as and for the purpose set forth.

2. The arrangement of the shafts B and C with their bevel-gearing, pulley X, guide-rollers D D, belt R, and pulley Y, as and for the purpose herein described.

3. The combination, in the thrashing-machine A, of the crank-wheel L, adjustable connecting-rod M and O, with the hinged screens N and P, all constructed and arranged as herein shown and described, for the purpose set forth.

RICHARD BRYAN.

Witnesses:

JOHN L. LEWIS.

CHARLES KETCHUM.

C. U. CRANDALL.

Corn Harvester.

No. 72,811. Patented Dec. 31, 1867.

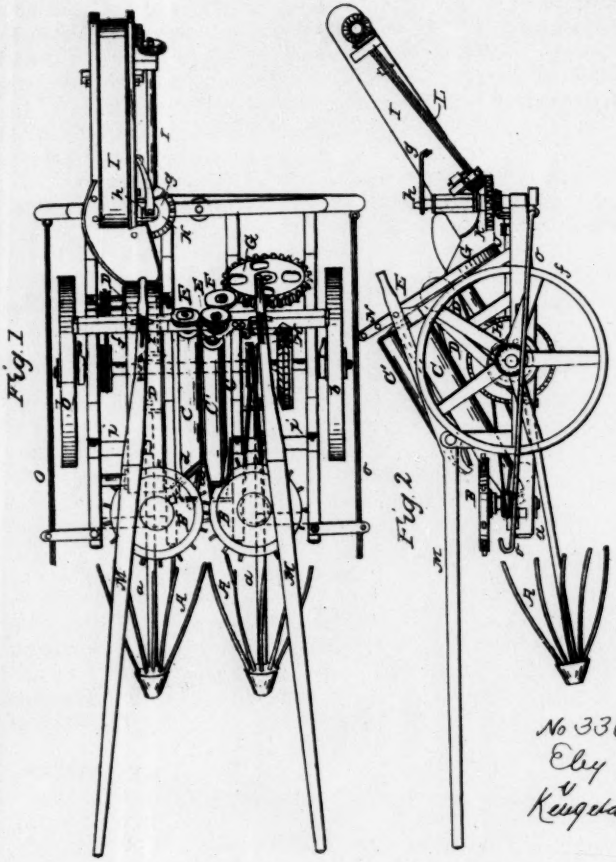


Fig 1

Fig 2

No 336
Eby
v
Kingsdale
} p 264

WITNESSES

Charles F. Collens

A. N. Gross

INVENTOR

By James G. Crandall

265 UNITED STATES PATENT OFFICE.

CYPRIAN U. CRANDALL, of Galesburg, Illinois.

Improvement in Corn-harvester.

Specification forming part of Letters Patent No. 72811, dated December 31, 1867.

To all whom it may concern:

Be it known that I, Cyprian U. Crandall, of the city of Galesburg, in the county of Knox and State of Illinois, have invented a new and useful improvement in corn-harvesters; and I do hereby declare that the following is a full, clear, and exact description of the construction and operation of the same, reference being had to the accompanying drawings, making a part of this specification, in which—

(Here follows diagram marked p. 264.)

Figure 1 is a plan view of the machine; Fig. 2, a side elevation. Like letters in both figures of the drawings indicate like parts.

The nature of my invention consists of the following improvements in the construction of corn-harvesters: First, the construction and arrangement of conical feelers or conveyers forward of the machine, for raising the fallen stalks to an upright position; second, arranging and combining therewith two gatherers provided with fingers or teeth, for placing the stalks in the proper position to be operated on; third, so constructing and arranging two or more smooth rollers, whereby the ears may be separated from the stalks; fourth, so applying and combining rubber or other springs with one or both ends of a roller as will enable the same to accommodate itself to the varying sizes of the stalks; fifth, arranging and combining with the rollers two or more pieces of wire or rods, for preventing the ears, after being separated from the stalks, from falling to the ground; sixth, the arrangement and combination of an endless carrier with the rollers, for receiving and conveying the ears away therefrom; seventh, the arrangement and combination of a swinging carrier with the above, for depositing the ears in a wagon or suitable box in the rear thereof; eighth, the arrangement of adjustable poles or tongues independently of each other, for preventing side draft and enabling the machine to straddle the rows of the corn.

To enable others skilled in the art to make and use my invention, I will proceed to describe its construction and operation.

A A are the feelers or conveyers, attached to rods *a a*, connecting with the frame of the machine. They are constructed of steel wire, slightly bent, so that on the forward movement of the machine they will traverse the ground properly and revolve toward each other, introducing themselves under the fallen stalks of corn and raising them to an upright position.

B B are the gatherers, provided with fingers or teeth. The left one is driven by an endless band or chain connecting it properly with the shaft of the driving-wheels *b b*; the right by the contact of its teeth with those of the other. The stalks, on being raised by the feelers or conveyers, are pressed toward the gatherers, which, as they revolve inwardly, are caught and passed between them to the rollers.

C′ C C are the rollers. The two lower ones lie in the same plane, and incline downwardly (see Fig. 2) from the rear to the front, with their lower ends so tapering (see Fig. 1) as to allow the stalks to be placed between them by the gatherers, where, by their revolutions toward each other, the stalks are forced down and the ears thus necessarily separated from them and most invariably from the husks. The left-hand roller is placed higher than the right, or it may be made larger, or a roller, C′, placed above the left-hand one, which will revolve by the friction of the stalks, so that in either event the ears separated therefrom will be inclined toward the carrier D and drop thereon. To make allowance for the varying sizes of the stalks, one of the rollers is made to adapt itself to any size of the same by a rubber spring, *c*, (see dotted lines in Fig. 1,) placed back of the support-plate, to which the tapering end of the roller is pivoted, said plate being secured to the side of the beam. This idea may be carried out with the other end of the roller, and with the ends of the next, if necessary. Two pieces of wire or rods, *d d*, (see Fig. 1,) or other suitable contrivance, are attached to the top of the beam, under the gatherer, and obliquely over the rollers C C, to prevent the ears from falling to the ground on their separation from the stalks. The rollers C C have pinion-wheels E E at their upper ends, the right meshing with a like one, F, below, and it meshing with a larger wheel, G, the shaft of which has a beveled one,
266 *e*, meshing with a larger beveled wheel, H, on the shaft of the driving-wheels. This constitutes the gearing for operating the rollers, the whole being supported by suitable framing. The endless carrier D is placed in close proximity to the rollers to receive the ears therefrom, and is operated in a suitable manner by a band or chain, *f*, connecting the upper shaft of the carrier with the shaft of the driving-wheels.

I is the swinging carrier, constructed of two side pieces, between which the carrier proper is arranged to operate. It is supported by an arm, *g*, connecting it with a fixed shaft, *h*, secured to the rear transverse beam of the machine. A shaft, J, is arranged on cross-pieces of the main frame, with a small beveled cog-wheel at one end meshing with one on the shaft of the driving-wheels, at the other a similar wheel meshing with one on the fixed shaft; also, on the same shaft, and secured over the latter, is a larger one, K. A shaft, L, supported properly by projecting pieces from the side of the carrier, with a small beveled cog-wheel at one end meshing with the larger just described, and at the other a similar wheel meshing with another on the shaft of the carrier, constitutes the gearing continuously from the shaft of the driving-wheels, by which the carrier is operated. A trough or other suitable contrivance is constructed at

the lower end of the carrier to receive the ears on their passage from the first carrier to this, which deposits it in a wagon or box in the rear.

M M are the poles or tongues, attached to cross-bars *i i*. The ends of these bars are pivoted to upright pieces of the frame, so as to allow the poles to be depressed or elevated to operate the machine properly. To do this conveniently handles are attached to them, which, when the poles are adjusted, are secured properly by pins in holes in upright bars N N, attached to the rear of the frame. By this arrangement of the poles side draft is prevented, and the machine is enabled to straddle the rows of corn, the horses being placed on the outside of the poles and suitably hitched to the rods O O, which rods are attached to the double-tree pivoted to the center of the rear transverse beam.

Having thus fully described my invention, what I claim therein as new, and desire to secure by letters patent, is—

1. Constructing a corn harvester or picker with feelers or conveyers A A, for raising the fallen stalks of corn to an upright position, substantially in the manner as described.

2. The combination of the gatherers B B with the feelers or conveyers A A, substantially in the manner and for the purpose as herein described.

3. The construction and arrangement of the rollers C′ C C, substantially in the manner and for the purpose as herein described.

4. The arrangement of the rubber spring *c* with the rollers, when the rollers are constructed and arranged substantially in the manner and for the purpose as herein described.

5. The wires or rods *d d*, as arranged substantially in the manner and for the purpose as herein described.

6. The arrangement of the endless carrier D with the rollers, when the rollers are constructed and arranged substantially in the manner and for the purpose as herein described.

7. Constructing a corn-harvester with a swinging carrier, I, substantially in the manner and for the purpose as herein described.

8. The adjustable tongues or poles M M, handles, upright bars N N, and rods O O, substantially in the manner and for the purpose as herein described.

9. The feelers or conveyers A A, rollers C′ C C, spring *c*, wires or rods *d d*, carriers D and I, and poles M M, all as arranged and combined substantially in the manner as described.

CYPRIAN U. CRANDALL.

Witnesses:

CHARLES F. CALKINS.
S. N. GROSE.

268 UNITED STATES PATENT OFFICE.

ARHEUNA B. NIMBS, of Buffalo, New York, assignor to himself and John C. Clifford.

Improvement in Floating Grain-elevators.

Specification forming part of Letters Patent No. 36193, dated August 12, 1862.

To all whom it may concern:

Be it known that I, Arheuna B. Nimbs, of the city of Buffalo, county of Erie, and State of New York, have invented certain new and useful improvements in floating grain-elevators, and I do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings, and the letters of reference marked thereon, in which—

(Here follows diagram marked p. 267.)

Figure I is a side elevation of the elevating apparatus and boat or vessel upon which it is supported. Fig. II is a cross-section of the vessel and end elevation of the elevating apparatus. Fig. III is an elevation of the elevating apparatus, and Fig. IV is a section of the turn-table and driving spur-wheels.

Letters of like name and kind refer to like parts in each of the figures.

A represents a central section of the vessel, upon which the elevating apparatus is supported, and which is of sufficient capacity to store one or more ordinary cargoes of grain. The vessel is provided with a steam-engine for driving the elevating machinery, which engine is also used to drive a propeller-wheel, by which the vessel may be moved from place to place, as occasion requires.

B represents a strong platform or floor supported above the deck of the vessel upon strong posts C, and having a circular portion, C′, which forms a bed upon which the turn-table D revolves.

E is the elevator-leg, constructed in a common manner, with a small pulley, e', at the foot and a larger pulley, e^2, at the top, around which the belt to which the elevating-buckets are attached revolves. The leg is hung in a sliding frame, F, by the shaft of the pulley e^2, which has its bearings in said frame.

G are two upright posts firmly secured to the turn-table D and stiffened by the braces G′, and connected together at the top by a cross-piece, G^2. The sliding frame F, with the elevator-leg, moves up and down between these posts on the guides h', they being of such height as to allow the leg to enter the hatch of the vessel from which the grain is to be elevated and reach down to its bottom.

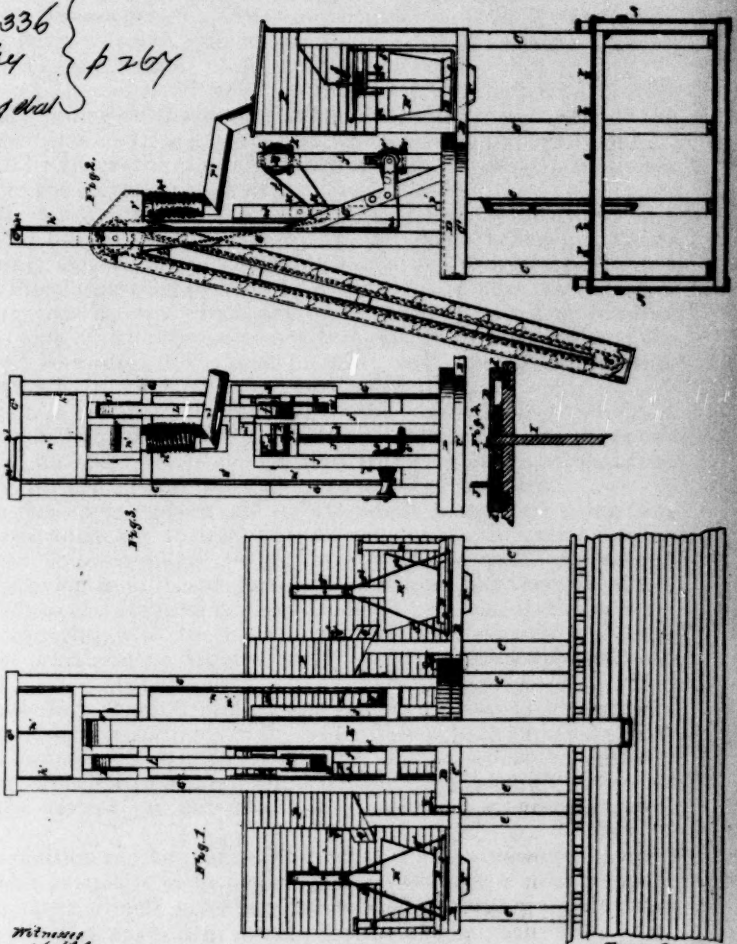
H is a driving spur-wheel placed in a space above the bed C′, formed by the flange or annular rim d' on the under side of the

A. B. Nimbs,

Grain Conveyer.

No 36,193. Patented Aug 12, 1862.

No 336
Ebey
Kingdon
p 267



Witness
A. H. Ebey
W. H. Babcock

Inventor
A. B. Nimbs

turn-table D, which annular rim rests upon friction-rollers C^2, placed in the bed C'.

I is the vertical shaft, upon which the driving spur-wheel H is keyed. It extends down below the deck of the vessel, and is there connected by appropriate gearing with the engine. It also projects up through the center of the turn-table, as shown at i', and forms the axis upon which the table revolves.

H^2 is a pinion gearing with the spur-wheel H, and keyed on the lower end of a vertical shaft, J, which shaft extends up through the turn-table and between two posts, J', firmly secured to the table, and has a journal-bearing at the top in the cross-piece J^2.

K is a bevel-wheel upon the upper end of the shaft J, which gears with a bevel-wheel, K', on a horizontal shaft, K^2, having journal-bearings in the vertical posts J'.

L is a pulley or band wheel on the end of the shaft K^2.

L^2 is a pulley on the same shaft as the pulley e^2 at the top of the elevator-leg, and L^3 is a belt which connects the pulleys L and L^2, so that by the revolution of the driving spur-wheel H motion is given to the elevating-buckets.

M are tension-pulleys bearing upon the belt L^3 and hung in a weighted frame, m', which slides up and down between the posts m^2, firmly secured to the turn-table, so that in the necessary rise and fall of the elevator-leg the belt L^3 will always be kept taut.

N is a windlass by which the elevator-leg is raised by winding up the rope n', which rope passes through guide-blocks n^2 and the block n^3, connected to the cross-piece G^2, and is fastened to the sliding frame F, in which the elevator-leg is hung.

Motion is given to the windlass by the bevel-wheels o and o', the bevel-wheel o being on the end of the windlass-shaft and the bevel-wheel o' on the vertical shaft J, they being so arranged that they may be thrown in and out of gear, as occasion requires.

The elevating-leg and all its attendant machinery being thus supported upon the turn-table, it is evident the turn-table may be revolved, so as to place the leg in any desired position, either to elevate from its own vessel such grain as may there be stored,
269 or to elevate from a vessel alongside, without in the least interfering with the operation of the said machinery, all the parts of which move together and retain the same relative position.

The table is held firmly in any required position by means of clamps o^3, which secure it to the bed. When it is wished to move it, it is simply necessary to loosen the clamps, when the action of the spur-wheel H upon the pinion H^2 will cause the table to revolve until the desired position is attained and the clamps again tightened.

The position of the posts which support the elevating-leg upon turn-table is such as to bring the spout p', through which the buckets discharge, directly over the center of the turn-table—a position which it will always keep, even with the varying positions of the leg and turn-table.

P represents a bin into which the grain is discharged from the

spout p' as it is brought up by the elevating-buckets, it passing through a flexible pipe, p^2, connected to the spout p' and opening into the mouth of an inclined trough, p^3, opening into the bin, the mouth of said trough being also over the center of the turn-table, so as to be always beneath the spout p'. The flexible pipe p^2 allows for the up-and-down movement of the elevator-leg, it being extended or compressed as the leg is raised or lowered.

The bottom of the bin is doubly inclined, the highest part being directly beneath the opening through which the grain enters, so that the grain may be taken from each end of the bin through the spouts Q in equal quantities. The spouts are provided with slides Q', by which the flow of grain is regulated.

R represents a pair of platform weighing-scales, one at each end of the bin, and provided with hoppers R', into which the grain runs from the spouts Q to be weighed. These scales are supported upon platforms S, which are suspended from arms S' by the rods S^2, so that the listing of the vessel will not affect the accuracy of the scales, they always retaining a perpendicular position. If necessary, the platforms S may be made of iron and very heavy, so as to prevent any possible vibration of the scales.

T are wide-mouthed spouts connected to the floor B beneath the scales, into which the hoppers R' open. The grain is conveyed by an appropriate trough from these spouts to the hold of the elevating-vessel, and there stored or carried into a vessel alongside, as the case may be. The bin is elevated sufficiently above the deck of the vessel, and is so arranged and connected with the elevating-scales and leg that the grain may be elevated from a vessel upon one side and weighed and transferred to a vessel upon the other side with but one set of elevating apparatus, a result which has not before been accomplished, to my knowledge. By placing the elevating-leg and its attendant machinery upon a turn-table, as described, I cause it to accomplish as much as three stationary ones could be made to do—that is, it will elevate from either end of its own vessel or from a vessel alongside. I thus save the expense of building and operating a large amount of machinery.

U represents railroad tracks laid upon the deck of a vessel, so that a train of cars may be run on and unloaded, hatches being made in the deck of the vessel, through which the grain is passed into the hold. When loaded in this manner, the elevator may be run alongside of the vessel in which the grain is to be shipped, and the grain elevated, weighed, and transferred into said vessel. This is a very important consideration where grain is shipped by railroad to a seaport in winter, and avoids the necessity of bagging the grain and a great expense in handling. I also contemplate connecting with my floating elevator a new and improved grain-drying apparatus which I am now constructing.

In a floating elevator for elevating grain, I claim—

1. Supporting and operating the elevator-leg upon a turn-table, for the purposes and substantially as set forth.

2. Placing and using the discharging-spout of the elevating-leg in line with the center of the turn-table, so that any movement of

the turn-table and elevating-leg will not change the relative position of the spout.

3. The combination of a grain-elevating apparatus and bin with a vessel, the elevating-leg and bin being so placed and arranged that the bin shall be above the deck of the vessel, and sufficiently high so that the grain may be discharged from the bin (or from the bin through the weighing-scales) into a boat alongside, substantially as described.

4. Supporting the weighing-scales upon a suspended platform, so that the scales and hopper will at all times maintain a perpendicular position, notwithstanding the listing of the vessel.

5. The combination of a railroad-track with a vessel and elevating apparatus, for the purposes and substantially as set forth.

A. B. NIMBS.

Witnesses:
GEO. W. WALLACE.
W. H. FORBUSH.

270 A. D. 1868, 29th January. No. 312.

Straw-elevators.

(This invention received provisional protection only.)

Provisional specification left by George Thornton at the office of the commissioners of patent, with his petition, on the 29th January, 1868.

I, George Thornton, farmer, now resident in Chesterfield, in the county of Derby, do hereby declare the nature of the said invention for "improvements in straw-elevators to take straw from thrashing machines" to be as follows:

The invention consists principally in attaching the straw-elevator to the delivery end of the thrashing machine by means of a circular plate and stud instead of mounting it upon a separate carriage, as hitherto practised.

The straw-elevator consists of a long light trough having an endless belt passing over rollers at each end to convey the straw from the thrashing machine onto the stack. The lower end of this trough is attached as above described by a circular plate and stud to the thrashing machine, and the other end is supported on two props which can be lengthened or shortened to suit the elevation required. The upper roller of the elevator over which the endless band passes is driven by an endless cord or band passing round a pulley on one end thereof, and round another revolving pulley or drum on the thrashing machine. By mounting the elevator on the circular plate and stud it can either deliver in a straight line from the outlet of the thrashing machine or at any angle to the right or left, the endless driving cord or belt being caused to pass round guide
271 pulleys or through guides placed near the point of junction of the elevator with the machine so as to allow it to be deflected to the right or left for that purpose.

A straw-elevator made according to my invention is much lighter and less expensive than those hitherto in use; it can easily be carried by two men and can be readily and speedily attached to and removed from the machine.

London: Printed by George Edward Eyre and William Spottiswoode, printers to the Queen's most excellent majesty. 1868.

272 A. D. 1861, 23rd September No. 2373.

Raising and Stacking Straw.

Letters patent to Henry Brinsmead, of Ipswich, in the county of Suffolk, machinist, for the invention of "improvements in apparatus for raising and stacking straw and other agricultural produce." Sealed the 18th March, 1862, and dated the 23rd of September, 1861.

Provisional specification left by the said Henry Brinsmead at the office of the commissioners of patents, with his petition, on the 23rd September, 1861.

I, Henry Brinsmead, of Ipswich, in the county of Suffolk, machinist, do hereby declare the nature of the invention for "improvements in apparatus for raising and stacking straw and other agricultural produce," to be as follows:—

In all the sets of apparatus hitherto used for this purpose in connection with that kind of machine well known as combined portable thrashing machines, the same has been constructed upon an independent framing and carried about upon a separate carriage from that constituting the framing and carriage of the combined portable thrashing machine.

Now, the object of this invention is to use the framing and carriage of the combined portable thrashing machine as the chief support and portable carriage for the apparatus composing the straw-elevator, and in the general arrangement of this consist the improvements of the apparatus. It may be well to avoid any misconception of what is intended in these improvements to guard against the idea that this apparatus is intended to supersede or is
273 merely an addition to the straw-shakers, which, in some cases, do in their very action elevate the straw to some slight extent, but this is not their object, neither have they hitherto been so constructed in these machines as to make the slight elevation which they give to straw of any practicable use as straw-elevators.

The improved apparatus for the purpose of elevating the straw receives the same after it has been submitted to the action of the shakers. It must be clearly understood that I do not confine myself to the adoption of any one of the present well-known modes or systems of apparatus as now used, or to any special apparatus whatever, as it will be o-vious that any one of them can be so modified as to be adapted to the framing of the thrashing *p*achine, and be carried about — the same set of road wheels.

Specification in pursuance of the conditions of the letters patent filed by the said Henry Brinsmead in the Great Seal patent office on the 22nd March, 1862.

To all to whom these presents shall come I, Henry Brinsmead, of Ipswich, in the county of Suffolk, machinist, send greeting:

Whereas, her most excellent majesty Queen Victoria by her letters patent, bearing date the twenty-third day of September in the year of our Lord, one thousand eight hundred and sixty-one in the twenty-fifth year of her reign, did, for herself, her heirs, and successors, give and grant unto me the said Henry Brinsmead her special license that I, the said Henry Brinsmead, my executors, administrators and assigns, or such others as I, the said Henry
274 Brinsmead, my executors, administrators and assigns, should at any time agree with and no others, from time to time and at all times thereafter during the term therein expressed, should and lawfully might make, use, exercise and vend, within the United Kingdom of Great Britain and Ireland, the Channel island-, and Isle of Man, an invention for "improvements in apparatus for raising and stacking straw and other agricultural produce," upon the condition (amongst others) that I, the said Henry Brinsmead, my executors or administrators, by an instrument in writing under my, or their, or one of their hands and seals should particularly describe and ascertain the nature of the said invention and in what manner the same was to be performed, and cause the same to be filed in the Great Seal patent office within six calendar months next and immediately after the date of the said letters patent,

Now, know ye, that I, the said Henry Brinsmead, do hereby declare the nature of the said invention and in what manner the same is to be performed, to be particularly described and ascertained in and by the following statement thereof that is to say:

In all the sets of apparatus hitherto used for this purpose in connection with that kind of machine well known as combined portable thrashing machines, the same has been constructed upon an independent framing and carried about upon a separate carriage from that constituting the framing and carriage of the combined portable thrashing machine.

Now, the object of this invention is to use the framing and
275 carriage of the combined portable thrashing machine as the chief support and portable carriage for the apparatus composing the straw-elevator, and in the general arrangement of this consists the improvements of the apparatus. It may be well to avoid any misconception of what is intended in these improvements to guard against the idea that this apparatus is intended to supersede or is merely an addition to the straw-shakers which, in some cases, do in their very action elevate the straw to some slight extent, but this is not their object, neither have they hitherto been so constructed in these machines as to make the slight elevation which they give to straw of any practicable use as straw-elevators. The improved apparatus for the purpose of elevating the straw receives

the same after it has been submitted to the action of the shakers. It must be clearly understood that I do not confine myself to the adoption of any one of the present well-known modes or systems of apparatus as now used, or to any special apparatus whatever, as it will be obvious that any one of them can be so modified as to be adapted to the framing of the thrashing machine, and be carried about — the same set of road wheels.

Having described the nature of my invention, I will now describe the accompanying drawings which illustrate two of the best methods of elevating straw with which I am acquainted and clearly illustrate the carrying out this invention, I do not, however confine myself thereto.

(Here follow diagrams marked pp. 280 & 281.)

Sheet I illustrates the application of this invention to an apparatus for raising and stacking straw, for which letters patent bearing date the 10th day of September, in the year of our Lord, 1860, were granted to William Wilkinson, and Henry Thompson Wright.

276 Figure 1 is a side elevation, figure 2 is a plan, of part of the apparatus which is permanently fixed to the framework of the combined portable thrashing machine. Figure 3 is a front view. The same letters refer to the same parts in the three views.

A. is the front part of a combined portable thrashing machine, or that part where the straw is delivered from the shaker. *a* is a moveable circular frame of T iron, supported by and having a sliding motion in two brackets *b*, *b*, fixed to the framework of the thrashing machine *c*, is a circular bar, also of T iron, permanently fixed to the framework of the thrashing machine concentric with the movable frame *a*. *d* is a bar projecting from the back part of the moveable frame *a*, to reach the fixed bar *c*, to which it may be clamped by a screw at its extremity for the purpose of holding the moveable frame *a* in any required position when working the straw-elevator at an angle with the thrashing machine. *e*, *e*, are two drums fixed to the moveable frame *a*, over which pass the endless rope or chains carrying the network. Motion is communicated to either of the drums by the pinion *f*, which can be shifted to either side for that purpose.

The pinion *f* receives motion from one of the spindles of the thrashing machine, in this a pulley *g* is fixed to the crank spindle *h*, which actuates the riddles of the thrashing machine, but is capable of being adjusted longitudinally along the spindle. The pulley *g*. communicates motion by a strap to the pulley *i* and its spindle *j*. The spindle *k*, which carries the pinion *f*, is connected with the spindle *j* by a universal joint, *m*, *m*, are two bearings in the movable frame *a*, to receive the spindle *k*, when required to drive the opposite drum. The bearing for the spindle *j* has a sliding mo-

277 tion of the bar *l* and can be clamped tight in any position so that when working the straw-elevator at an angle with the

thrashing machine the spindle *j* may be set parallel with the crank spindle *h*, *n*, *o*, are tubes sliding one inside the other, the tubes *o* being connected by a frame *p*, to which are fixed the drums *q* to receive the endless chains or ropes carrying the network. The lower ends of the tubes *n* rest in sockets *r*, which play freely on a tube *s*, which serves as an axle for the wheels or rollers *t*, and has a ratchet and pawl *u*. On the central part of the tube *s* is another tube *v* also having a ratchet and pawl *w*. Ropes *x*, with suitable blocks, serve to raise the tubes *o* and ropes *y* passing round a stake *z* driven firmly into the ground, and wound upon the tubes *v*, serve to give the tubes the necessary inclination for delivering the straw at the elevation required. The drawing shews the apparatus fixed in a position ready for work.

When it is required to travel the ropes *x* and *y* are slackened until the frame *p* reaches the ground. The endless ropes or chains, with the network, are detached from the drums *q* and are coiled onto a roller fixed in any convenient position on the thrashing machine. The chain braces 1 and 2 are then slackened and unhooked at one end and the strut-bar 3 taken out. The frame *p*, with the drums *q*, also can then be readily detached from the tubes *o*. The tubes *n* can A be detached from the sockets *r*, and placed on brackets placed to receive them at the side of the thrashing machine. All the other parts are packed in and about the thrashing machine, so as to travel with safety and convenience. Sheet II, illustrates the appli-
278 cation of this invention to an apparatus for raising and stacking straw &c. for which letters patent bearing date the 3rd day of June, in the year of our Lord, 1853, were granted to James Hayes.

Figure 1 is a side elevation. Figure 2 is a front view. Figure 3 is a plan.

The same letters refer to the same parts in all three views.

A is a frame, to which are clamped the tubes B; the tubes are braced by the wire ropes C, the lower one of which carries the bottom D, made after the manner of patent window shutters, so as to admit of being coiled on a roller; E is a roller fixed to the frame A. F is a roller fixed to the ends of the tubes B. G, G, are straps armed with spikes, passing round the rollers E, F, and are strained to the requisite tightness by the screws *a* at the ends of the tubes B. The frame A is supported by a bracket *b*, which has motion across the machine by the racks and pinions *c d*, actuated by the worm wheel and crank *e*, *f*. The tubes B are held at the requisite inclination by the ropes H, which pass over the sheaves I at the top of the posts J, and thence round the drums K. The drums K are furnished with ratchets, so as to admit of being turned independent of the spindle L and of each other when the straw-elevator is required to be placed at an angle with the thrashing machine. In raising and lowering the straw-elevator both the drums K are actuated simultaneously with the spindle L by means of the worm wheel and crank *g*, *h*. The posts J rest on suitable brackets fixed to the thrashing machine, and are braced by chains M, attached to the

rear end of the machine, and also by chains N, attached to the naves of the front wheels, and a chain O connecting their upper ends.

279 For communicating motion to the straw-elevator, each end of the spindle for the roller E is fitted to receive a bevel wheel *i*, which is actuated by the pinion *j*. The spindle *k* carrying the pinion *j* has a universal joint, and is driven by the spindle *l*, to which is fixed the pulley *m*, which receives motion from a pulley *n* fixed to one of the spindles of the thrashing machine.

When the straw-elevator is to be packed for travelling or removal the bottom D is coiled round the roller E, the tubes B and ropes C are taken out of the frame A, and fixed in brackets placed at the side of the machine for their reception. The roller F, with the straps G coiled round it, are placed on the frame A, which is wound up by the chain *o* close to the frame of the threashing machine.

The posts J, with the chains M, N, O, are packed on the top of the machine. The ropes H are coiled round the drums K.

Having described the nature of my invention and some of the methods of performing the same, I would have it understood that I do not confine myself to either of the two systems of apparatus herein described, nor to any special apparatus whatever, but what I claim is, the using of the framing and carriage of the combined portable thrashing machine as the chief support and portable carriage for the apparatus composing the straw-elevator, and the adaptation of the latter to the framing of the thrashing machine, so that it may be carried about upon the same set of road wheels.

In witness whereof, I, the said Henry Brinsmead, have hereunto set my hand and seal, this twentieth day of March, in the year of our Lord one thousand eight hundred and sixty-two.

HENRY BRINSMEAD. [L. S.]

Witness:
ARTHUR THOMAS COLE,
Of Ipswich, Accountant.

282 NORTHERN DISTRICT OF ILLINOIS, } ss:
Northern Division, }

I, William H. Bradley, clerk of the circuit court of the United States for said northern district of Illinois, do hereby certify the above and foregoing to be a true and correct transcript of the record of all the proceedings had in said court in the cause wherein Henry H. Eby is complainant and Solomon E. King, Hugh M. Hamilton, and John H. Gilman are defendants, as the same appears from the records and files of said court now remaining in my custody and control.

Seal of Circuit Court U. S., Northern Dist. Illinois, 1855.

In testimony whereof I have hereunto set my hand and affixed the seal of said court, at my office, in Chicago, in said district, this seventeenth day of October, 1891.

WM. H. BRADLEY, *Clerk.*

rear end of the machine, and also by chains N, attached to the naves of the front wheels, and a chain O connecting their upper ends.

279 For communicating motion to the straw-elevator, each end of the spindle for the roller E is fitted to receive a bevel wheel *i*, which is actuated by the pinion *j*. The spindle *k* carrying the pinion *j* has a universal joint, and is driven by the spindle *l*, to which is fixed the pulley *m*, which receives motion from a pulley *n* fixed to one of the spindles of the thrashing machine.

When the straw-elevator is to be packed for travelling or removal the bottom D is coiled round the roller E, the tubes B and ropes C are taken out of the frame A, and fixed in brackets placed at the side of the machine for their reception. The roller F, with the straps G coiled round it, are placed on the frame A, which is wound up by the chain *o* close to the frame of the threashing machine.

The posts J, with the chains M, N, O, are packed on the top of the machine. The ropes H are coiled round the drums K.

Having described the nature of my invention and some of the methods of performing the same, I would have it understood that I do not confine myself to either of the two systems of apparatus herein described, nor to any special apparatus whatever, but what I claim is, the using of the framing and carriage of the combined portable thrashing machine as the chief support and portable carriage for the apparatus composing the straw-elevator, and the adaptation of the latter to the framing of the thrashing machine, so that it may be carried about upon the same set of road wheels.

In witness whereof, I, the said Henry Brinsmead, have hereunto set my hand and seal, this twentieth day of March, in the year of our Lord one thousand eight hundred and sixty-two.

HENRY BRINSMEAD. [L. S.]

Witness:
ARTHUR THOMAS COLE,
Of Ipswich, Accountant.

282 NORTHERN DISTRICT OF ILLINOIS, } ss:
Northern Division, }

I, William H. Bradley, clerk of the circuit court of the United States for said northern district of Illinois, do hereby certify the above and foregoing to be a true and correct transcript of the record of all the proceedings had in said court in the cause wherein Henry H. Eby is complainant and Solomon E. King, Hugh M. Hamilton, and John H. Gilman are defendants, as the same appears from the records and files of said court now remaining in my custody and control.

Seal of Circuit Court U. S., Northern Dist. Illinois, 1855.

In testimony whereof I have hereunto set my hand and affixed the seal of said court, at my office, in Chicago, in said district, this seventeenth day of October, 1891.

WM. H. BRADLEY, *Clerk.*

283 UNITED STATES OF AMERICA, } ss:
Northern District of Illinois, Northern Division, }

To Solomon E. King, Hugh M. Hamilton, & John H. Gilman, Greeting:

You are hereby cited and admonished to be and appear at a Supreme Court of the United States, at Washington, on the twenty-third day of October, A. D. 1891, pursuant to an appeal entered of record in the circuit court of the United States for the northern district of Illinois, wherein Henry H. Eby is appellant & you, the said Solomon E. King, Hugh M. Hamilton, & John H. Gilman, are respondents, to show cause, if any there be, why the decree in the said appeal mentioned should not be reversed and speedy justice should not be done to the parties in that behalf.

Witness the Hon. Walter Q. Gresham, judge, this 26th day of September, in the year of our Lord one thousand eight hundred and ninety one.

WALTER Q. GRESHAM.

284 [Endorsed:] Supreme Court of the United States. —— —— *vs.* —— ——. Citation to October term, A. D. 18—. Due service of the within citation admitted this 29th day of September, 1891. Lorenzo Leland, att'y for respondents.

285 Supreme Court of the United States, October Term, 1891.

HENRY H. EBY, Appellant, *vs.* SOLOMON E. KING, HUGH M. Hamilton, and John H. Gilman, Appellees.	Appeal from the United States Circuit Court for the Northern District of Illinois.

And now comes Henry H. Eby, the appellant, by Joseph G. Parkinson, his attorney, and says that in the record and proceedings and in the rendering of judgment in the above-entitled matter there is manifest error, in this, to wit:

First. The court below erred in finding the patent sued upon not good and valid.

Second. The court below erred in dismissing the bill.

Third. The court below erred in holding the claims of the reissued patent to be broader than the claims of the original patent.

Fourth. The court below erred, in that it did not hold the patent sued upon to be in all respects good and valid, the property of complainant and infringed by defendants, and grant the injunction, account, and other relief prayed for in the bill.

HENRY H. EBY,
By JOSEPH G. PARKINSON,
His Attorney, Adams Express B'ld'g, Chicago.

Endorsed on cover: Case No. 14,914. N. Illinois C. C. U. S. Term No., 336. Henry H. Eby, appellant, *vs.* Solomon E. King, Hugh M. Hamilton, & John H. Gilman. Filed October 24, 1891.

Office Supreme Court, U. S.
FILED
APR 22 1895
JAMES H. McKENNEY,
CLERK.

Supreme Court of the United States.

OCTOBER TERM, A. D. 1894.

No. 336.

HENRY H. EBY, *Appellant*,

vs.

SOLOMON E. KING, HUGH M. HAMILTON AND JOHN H. GILMAN.

BRIEF FOR APPELLANT.

Joseph G. Parkinson,
Harold G. Underwood,
Of Counsel.

Eastman Bros., Law Printers, 187 Washington St., Chicago.

Supreme Court of the United States.

OCTOBER TERM, A. D. 1894.

No. 336.

HENRY H. EBY, *Appellant*,

vs.

SOLOMON E. KING, HUGH M. HAMILTON AND JOHN H. GILMAN.

BRIEF FOR APPELLANT.

STATEMENT.

Letters patent of the United States No. 134,790, dated January 14th, 1873, for an Improvement in Cob-Carriers for Corn-Shellers, were granted appellant as of that date with three claims, as follows:

"1. The combination of the block *b*, adapted to revolve as described, and the hook-bolts *e e*, for supporting a carrier, as described.

"2. The combination of the block *b* and the central vertical shaft and its connections, substantially as described.

"3. The combination of the frame-work *a a a*, block *b*, the central vertical shaft b^1, pulley b^2, gear-wheel b^3, horizontal shaft with pinion *c* and gear-wheel *c'*, carrier-frame D having belts *d d*, supports d^1 d^1, gear-wheel d^2, arms *e e*, and bolts *m m*, arranged as and for the purpose described."

In the preamble of the specification it was stated that—

"this invention is designed for use in connection with a power corn-sheller for the purpose of carrying away the cobs from the machine, and consists mainly in the combination of suitable devices for actuating the carrier, with means for adjusting the carrier to cause it to discharge the cobs in any desired direction."

The machine described in the specification consisted in general terms of an endless carrier supported at its outer end upon legs, which permitted its height to be adjusted as to said outer end, and its foot pivoted to supporting-arms rising from a turn-table or block, so that it might be swung rapidly about the axis of its driving-shaft with this block, and vertically upon its pivotal connection with the arms, to deposit the cobs properly upon the stack. A train of gearing leading from its driving shaft revolved the lower drum of the endless conveyer and thereby imparted a continuous movement to carry the cobs delivered from the corn-sheller up from the foot and deliver them over the head, and the train of gearing described was such that the swinging movement about the axis, or the pivotal movement, to raise the outer end to accommodate the growing height of the stack, could be accomplished without stopping the operation of the machine—that is, these adjustments might take place while the driving mechanism was in continuous operation.

It is true that this capacity for adjustment, while continuing the uninterrupted delivery of cobs to the stack, was not specifically mentioned in the original specification, but it followed from and was inherent in the described mechanism.

Stress was laid upon the capacity of the carrier for discharging the cobs in any desired direction in the original specification, it not only being mentioned in the preamble, but again in the body of the specification.

In the first claim as originally granted there was an error in the use of the phrase "hook-bolts *e e*, for supporting a carrier," the hook-bolts described in the specification having nothing to do with the support of the carrier and not being lettered "*e e*," but "*m m*," their purpose being to clamp the supporting block rigidly, if desired, whenever the carrier had been swung to any given position and, obviously, to resist the thrust of the gearing which would tend to swing the carrier around its pivot. The parts lettered "*e e*" were the arms to which the carrier was pivoted at its foot, which rise from the block and in connection with the block or turn-table serve to support the carrier, and therefore meet the requirement of the claim that "the block *b*, adapted to revolve as described," and the parts *e e* shall support the carrier. Evidently, therefore, it was the arms *e e* that were intended to be covered in the first claim.

For this and other reasons the inventor surrendered his patent on the 20th day of March, 1877, and on the 21st day of August, 1877, reissued letters patent No. 7,851 were granted to him with two claims.

In his original application for reissue he has six claims, of which the fifth and sixth were as follows:

"Fifth. The combination of the block B adapted to revolve as described, and the arms F F', for supporting the carrier, as set forth.

"Sixth. The combination with the carrying-frame of the revolving-block B, and the central vertical shaft and its connections, as described and shown."

The first of these two claims corresponded to the first claim of the original patent with the correction already indicated, to wit, the omission of the word "hook-bolts," and the insertion of the word "arms," and the second of the two claims was word for word the same as the second claim of the original patent.

This reissue application underwent a rigid examination in the Patent Office, resulting in the rejection of the first four claims upon conclusive references, so that they were withdrawn and cancelled, and also the rejection of the fifth and sixth claims upon references which showed the necessity of limiting the invention even beyond that originally claimed, to avoid misconception; they were therefore cancelled and two claims substituted, which were also rejected by the Commissioner of Patents and cancelled, and two others substituted for them, of which one is the present second claim, while the other underwent still further examination and amendment, the Patent Office finally suggesting that Eby was entitled to claim his devices "in combination with gearing applied at the inner end and capable of acting continuously, whether the elevator is fixed in position or being swung to a new position." This suggestion was adopted and the reissue granted with claims reading as follows:

"*First.* A movable independent cob-carrier wherein are carried a supporting and revolving block, a carrying frame whose inner end is supported upon said block, and whose outer end is supported upon movable legs, and gearing applied at the inner end of the carrying frame and capable of acting continuously whether the carrying frame is fixed in position or being swung to a new position, substantially as described.

"*Second.* A movable independent cob-carrier wherein are combined a carrying frame supported at its inner end upon a revolving block, and the central vertical shaft and its connections, whereby the said carrying frame can be adjusted vertically and horizontally without stopping the operation of the endless belt, substantially as and for the purposes set forth."

The file-wrapper and contents in the matter of the reissue letters patent are printed on pages 13 *et seq.* of Transcript of Record.

At the time of the application for reissue the model filed with the application upon which the original patent was granted was in existence and was undoubtedly used for the purpose of elucidating details of the machine in the drawings of the reissue application, as permitted by law, although all of the details might easily be read, by one skilled in mechanics, from the original drawing itself. That model was, however, shortly afterwards destroyed in the great fire in the Patent Office on the 24th day of September, 1877, as appears by stipulation on page 15 of Transcript of Record.

The title of the complainant is not disputed.

Upon the letters patent as reissued the appellant herein commenced suit in the Circuit Court of the United States in the Northern District of Illinois, in the Seventh Circuit, on or about the 10th day of January, 1881, against the appellees herein, alleging infringement of both claims, and, in their answer to the bill of complaint, the defendants alleged, among other things, that said reissued letters patent were invalid as not being for the same invention as that for which the original letters patent were granted, and that they were anticipated in various prior patents and publications enumerated.

Afterwards, testimony being taken by both parties, and the cause coming on to be heard, Judge Gresham held that complainant was not a pioneer in the art; that he was not the inventor broadly of a swinging adjustable carrier, as such carriers were in prior use, and was therefore limited to his specific claim as a means of accomplishing the desired result; that the original patent described bolts secured in the frame-work with the upper ends turned over the disk-block, which bolts were indispensable as a means of holding the block securely in position while the machine was in use; that in the reissue the complain-

ant had introduced a cross plate under the block as a support, the plate being sunken in a cross-piece of the same frame, the axis of the block passing through this plate and causing the block to be held in position so that the carrier might be changed in direction without stopping the operation of the carrying belt of the machine, thus rendering the old hook-bolts almost, if not entirely, unnecessary; that it was plain from the evidence in the record that the complainant thought his original patent too narrow, and obtained his reissue with broadened claims; finally, that the defendants' device infringed neither the original nor the reissued patent, that the application for the reissue with broadened claims was made more than four years after the original patent was granted, and that the reissue was, therefore, void.

It is insisted that the court below erred:

First. In holding that complainant was limited to his specific claims as a means of accomplishing the desired result.

Second. In holding that the hook-bolts were indispensable as a means of holding the block securely in position while the machine was in use.

Third. In holding that the complainant introduced a cross plate under the block as a support, in the reissue.

Fourth. In holding that complainant obtained his reissue with broadened claims.

Fifth. In holding that defendants' device infringed neither the original nor the reissued patent.

Sixth. In holding the claims of the reissued patent to be broader than the claims of the original patent.

Seventh. In finding the reissued patent void.

Eighth. In dismissing the bill for want of equity.

Ninth. In that it did not hold the patent sued upon to be in all respects good and valid, the property of com-

plainant and infringed by defendants, and grant the injunction, accounting and other relief prayed for in the bill.

INFRINGEMENT.

The model marked "King, Hamilton & Co.'s Device" represents the cob-carrier sold by defendants and alleged to infringe. (Testimony of Lucas, Transcript of Record, 19 to 21, Ans. 7; John H. Gilman, in behalf of defendants, Transcript, page 76, Ans. 11 and 12.)

The model marked "Complainant's Model Exhibit Eby" represents the form of the invention shown in the patent. (Testimony M. E. Dayton, Transcript of Record, page 24, Ans. 4; H. H. Eby, Transcript, page 40, Ans. 4; William M. Eby, page 73, Ans. 3.)

In complainant's structure there is a revolving block or turn-table, lettered *b* in the original patent and capable of rotation around the central vertical shaft *b'* of said patent, the corresponding reference letters in the reissue being B and C. The vertical shaft passes through a plate, shown in figure 1 of the drawings of the original patent as extending between the cross-bars on either side of the pulley b^2, just above said pulley and beneath the longitudinal bar *a* of the frame. In the reissue the longitudinal bars are lettered A and the cross-bars *b b'*, and the pulley B', while the plate is not lettered in the drawings of the original patent, but lettered *b* in the reissue drawings. In the original drawings the end of this plate is clearly shown in figure 2 immediately above the depressed cross-bars and below the end bar of the frame, and practically between the fragmentary representation of the driving-shaft which connects with the pulley. It is also shown in figure 2 of the reissue patent. The turntable resting upon this plate is, as shown by the side ele-

vation in figure 1 of the original drawings, sunk flush with the longitudinal bars of the frame, and practically flush with the end bars, as represented in figure 2. The vertical driving-shaft rising centrally through the turn-table has, at its upper end, a beveled wheel b^3 in original drawings (C^3 in reissue drawings), communicating motion to the beveled pinion c (D′ in reissue), and this, through a short horizontal shaft mounted in bearings on the turn-table, drives a spur-gear c' (D^2 in the reissue), the latter spur-wheel meshing with the spur-wheel at the end of the drum at the foot of the carrier frame, thereby driving the cob-carrier.

The upper ply of the cob-carrier is required to always move toward the head of the carrier-frame, and it is well understood by mechanics that this can be accomplished by an even number of gears in such arrangement as this, depending upon the direction in which the driving-shaft moves. With the beveled gear above the table and crowning the pinion which it carries, four gears are necessary, but with the beveled gear either above or below the table and the pinion crowning it, but two gears become necessary.

As the vertical driving-shaft passes up through the base-plate it is necessarily collared thereby and kept from lateral movement. It cannot find its bearing in the turn-table, because that is intended to rotate loosely around the shaft, and there are no means described in the original patent to brace this table against lateral thrust in all directions. It is true that two hook-bolts m are described in the original patent for the purpose of clamping the tables in any desired adjustment, but these are placed diametrically opposite each other; therefore they are for the purpose of a safeguard to resist the tangential thrust of the gearing, which would tend to cause a rotary

or planetary movement, and they cannot resist effectively lateral thrust at right angles to the diameter on which they are located, nor could they resist tangential thrust effectively if it were not for the fact that the vertical shaft found its bearing in the plate beneath the turn-table and connecting the cross-bars or stringers of the frame. Arms *e e* (F F′ in the reissue) rise from the turn-table, and to these arms the carrier-frame D is pivoted on a horizontal axis, practically concentric with the axis of the drum at its foot, so that its outer end may be free to move vertically without throwing it out of mesh with its driving gear, while the rotary capacity of the turn-table around the axis of the vertical driving-shaft permits its head or outer end to be swung laterally in either direction, also without throwing it out of mesh with the driving-gear; therefore the carrier may be adjusted in any way desired while being constantly driven, the vertical adjustment being maintained by means of the pivoted legs *d′* (G G′ in the reissue), and the lateral adjustment being sufficiently secured by means of these legs and also made practically rigid when so desired by means of the hook-bolts.

In defendants' machine there is a vertical driving-shaft having near its upper end a large beveled driving gear wheel of a diameter corresponding to the width of the carrier-frame; a turn-table of crown shape covers this wheel and fits over the top of the central vertical shaft so that it may turn freely thereabout without interfering with the rotation of the driving gear which is upon a tabular shaft encircling the fixed central shaft or axis. Arms corresponding to the arms *e e* of the original patent (F F′ of the reissue patent) rise from the top of this turn-table and to the upper end of these arms the carrier-frame is pivoted on an axis concentric with the drum at the foot of

the carrier, that is to say, at one end of the shaft of this drum extended in the line of the axis; a beveled pinion upon this shaft meshes directly with the beveled gear on the driving-shaft, thereby turning it when the driving-shaft is revolved.

Defendant's cob-carrier being mounted upon a turn-table and pivoted to arms on said turn-table on an axis concentric with the axis of the drum, as in Eby's construction, can obviously be adjusted vertically at its outer end by means of legs, which are provided for that purpose, without throwing the gearing out of mesh; and since the turn-table is revoluble concentrically around the axis of the driving-shaft, the carrier-frame can be swung laterally in either direction, likewise without any tendency to throw the driving-gear out of mesh, so that all its adjustments vertically and horizontally may be made while the gearing is in continuous motion and the cob-carrier delivering to the stack without interruption, the principle being the same as in Eby's invention; that is to say, all the movements are accomplished upon axes concentric with driving or driven shafts of the gearing.

Defendants' device clearly contains every element of the two claims of the reissued patent. Defendants' device is, in the language of the first claim of the reissued patent:

"A movable independent cob-carrier, wherein are combined a supporting and revolving block, a carrying frame whose inner end is supported upon said block, and whose outer end is supported upon movable legs, and gearing applied at the inner end of the carrying frame, and capable of acting continuously whether the carrying frame is fixed in position or being swung to a new position."

By the terms "movable independent cob-carrier" is meant a carrier-frame and belt which, as a whole, is independent of or detachable from the frame or sheller so

as to be movable by itself, and which is capable of a movement or adjustment in any direction, both vertically and horizontally.

Mr. Dayton, a well-known mechanical engineer and expert, testifying for complainant (Transcript, page 25), says:

"Q. 5. Have you examined and are you familiar with the construction and operation of a model of a cob-carrier marked 'Complainant's Model Exhibit King, Hamilton & Co.'s Device,' and have you heard or read the testimony of James Lucas in relation to the cob-stacker, to which he testifies as having been purchased by him of the defendants?

"A. I have examined and am familiar with the construction of said model, and have heard the testimony of said witness.

"Q. 6. Please compare 'Complainant's Model Exhibit King, Hamilton & Co.'s Device,' as the same would have to be modified to correctly represent the cob-carrier purchased by the witness of the defendants as described in his testimony, with the improvements recited in both the claims of 'Complainant's Patent Exhibit Complainant's Patent,' and state whether or not you find the improvements therein claimed embodied substantially in a cob-carrier such as would be correctly represented by said last-mentioned model as modified by the testimony of said Lucas, and give your reasons for any opinion you may express.

"A. I have made the comparison called for by the question and find that the testimony of James Lucas as to differences between model present, marked 'King, Hamilton & Co.'s Device,' and the machine purchased by him are not essential in reference to this comparison. I further find in said model exhibit 'King, Hamilton & Co.'s Device' each and all of the elements of the first and second claims of complainant's patent sued on in this case; that is to say, I find in said model exhibit the elements of claim 1, namely, 'a movable independent cob-carrier wherein are combined a supporting and revolving block, a carrying frame whose inner end is supported upon movable legs, and gearing applied at the inner end of the car-

rying frame and capable of acting continuously whether the carrying frame is fixed in position or being swung to a new position,' in all essential particulars substantially as described in said complainant's patent. I do not fail to note the fact that a different arrangement of the gear wheels is shown in said model exhibit 'King, Hamilton & Co.'s Device,' from that shown in said complainant's patent, but I do not understand that complainant's patent is limited to the precise construction therein shown, as far as relates to the first claim thereof, and, morover, I regard the construction shown in said model exhibit 'King, Hamilton & Co.'s Device' as in all respects the mechanical equivalent of the device shown in said complainant's patent so far as relates to the purposes and operation referred to in the first claim of said patent. I also find in said complainant's model exhibit 'King, Hamilton & Co.'s Device' the elements of the second claim of said complainant's patent, namely, 'an independent movable cob-carrier, wherein are combined a carrying-frame, supported at its inner end upon a revolving block, and the central vertical shaft and its connections, whereby the said carrying-frame can be adjusted vertically and horizontally without stopping the operation of the endless belt,' in all essential respects substantially as and for the purposes set forth in said complainant's patent, the difference in the arrangement of the gear-wheels in reference to each other and with reference to the revolving block being such as to not, in my judgment, in any manner affect the operation of the machine as contemplated in the second claim of said complainant's patent, or carry it out from under said claim as a description of a combination of mechanical elements for the purposes stated therein.

"Remarking upon the individual elements of the two claims of complainant's patent, I understand the carrying-frame to be the trough in which travels the belt having transverse slats thereon. By the revolving block, I understand the horizontal centrally pivoted plate from which rise the arms which support the inner or lower end of the trough or carrying-frame. There can be no doubt as to what is meant by the element of gearing specified in said claim or that of movable legs present in the first claim. The connections referred to in the second claim I

understand to mean the block, the driving-gear, and the supporting-arms by which the carrying-frame or trough is attached to a rotating block, and to which said carrying-frame is pivoted, so as to be vertically movable. In complainant's patent four gear wheels are employed, while in the model exhibit 'King, Hamilton & Co.'s Device' but two are used. In said patent exhibit the horizontal beveled driving spur-gear wheel is arranged above the revolving block, while in said model exhibit such spur is below the revolving block. While there may be some advantage in simplicity or otherwise in said model exhibit 'King, Hamilton & Co.'s Device' as compared with that shown in complainant's patent, it is obvious to my mind that they are substantially the same structure, operating on the same principle and for the same purpose."

The description of the patented device as contained in the reissue is substantially that of the defendant's device. The revolving block of the patent is found in the circular metal plate of the defendant's device, which circular plate is capable of being rotated upon the upright central vertical shaft. Upon this metal plate rest the arms which support the inner end of the carrier, in precisely the same manner as the arms which support the inner end of the carrier rest upon the rotating block of the patented device. The carrier-belt is actuated by gearing applied at the inner end of the carrier in the defendant's device the same as in the patented device. It is true that in the defendant's device the horizontal gear wheel attached to the vertical shaft is made large enough to engage with the gear wheel which is attached to the inner roller of the carrying-frame, thus dispensing with two of the gear wheels shown in the patent; but the first claim of the reissue is not restricted to any particular kind of gear wheels; and this slight mechanical change which the defendants have adopted, namely, extending the horizontal gear wheel of the patented device so that it will mesh

with the wheel on the inner end of the carrying-roller, does not take the defendant's device out from under the claim. The defendant's arrangement of the gear wheel is the mechanical arrangement shown in the Eby model." (Test. M. E. Dayton, *ubi sup.*; also Transcript, p. 41, Ans. 2, and p. 59, Ans. 4, 5, 6; Cyrus Kehr—for defendants—page 93, Ans. 19–26.)

Mr. Kehr, defendants' expert, testifies, beginning on page 92 of Transcript, as follows:

"X Q. 17. Is the defendant's carrier capable of acting continuously whether the carrying-frame is fixed in position or being swung to a new position, and can the carrying-frame of the defendant's device as shown in the model be adjusted vertically and horizontally without stopping the operation of the endless belt?

"A. Yes.

"X Q. 18. Do you give it as your opinion that if the gear wheel upon the upright central vertical shaft of the model marked 'Eby' were enlarged to such an extent that it would mesh with the gear wheel at the side of and at the inner end of the carrying-frame, and which is attached to the roller at the inner end of the carrying-frame, and both these wheels were suitably beveled so as to mesh together, dispensing with the other two gear wheels shown in the Eby model, that such construction would not be a mere mechanical substitute or equivalent for the construction now shown in said model?

"A. A large variety of devices might be substituted for the gear and shafting mounted on Eby's turn-table, as shown by the model. In a certain sense all these devices would be mechanical equivalents, but under certain circumstances a device may be an equivalent, while it is not under different circumstances. Whether the devices mentioned in the question would be equivalents must be determined by reference to the patent of which this model is a representation and to the prior art. If this patentee be found to be a pioneer in his line of invention, we must make a broad interpretation of equivalents, but if he be not found a pioneer in his line of invention, and it be found that a variety of devices similar to his has preceded

him, we must make a narrow or restricted interpretation.

"X Q. 19. The question did not refer to the complainant's patent, either original or reissue, nor to the state of the prior art, nor whether complainant is entitled to hold equivalents or mechanical substitutes under the claims of his patent; the question is simply whether the construction supposed in cross-question 18 would not be a mere mechanical substitute or equivalent for the construction shown in the model marked 'Eby.' The answer to this question is one of mere mechanics and has no connection whatever with the patents. I will therefore ask that it be re-read to the witness and that he give a direct answer to the same.

"A. The supposed construction would be a generic substitute or equivalent for the construction shown in the Eby model, but it would not be a specific substitute or equivalent.

"X Q. 20. What do you mean by a 'generic' substitute or equivalent, and what do you mean by a 'specific substitute or equivalent'?

"A. By a 'generic' substitute or equivalent I mean one of several devices or combinations of devices which may in some cases be used for the same purpose. For example, if we wish to exert a pressure, we may do so by a spring, weighted lever, screw, cams, etc., if the conditions happen to be favorable for the use of each; but in some cases, perhaps, only one of these means would answer the purpose. All these devices constitute a genus, of which————is a species. Any device which will in a general way perform the functions of the genus is a generic equivalent for the several devices of the genus, and if any two individual devices perform the same function in the same or almost the same manner, they are specific equivalents. The distinction between generic and specific equivalents is in some cases a matter of degree. By this I mean that the genus may be broad and comprehensive or it may be limited.

"X Q. 21. Do you mean to say that one device is a generic equivalent of another, if both produce the same result without reference to the mechanical means by which the result is effected?

"A. I do.

"X Q. 22. Applying, then, this distinction as you

have given it to the hypothesis contained in cross-question 18, do you mean to state by the answers you have given to cross-questions 18 and 19 that the same result is accomplished by the supposed construction contained in said 18th cross-question and the construction shown in the Eby model, but that the mechanical means are different?

"A. Considering the whole of the Eby device as shown by the model, and comparing it with the supposed constriction set forth in cross-question 18, the same result is reached by the two devices, but it is quite apparent that there is a difference in mechanical means.

"X Q. 22½. Is this difference between mechanical means employed in the device supposed by cross-question 18 and that employed in the device represented by the Eby model a generic or specific difference?

"A. It is a specific difference.

"X Q. 23. Then it is not a fact that the device supposed in cross-question 18 and the device represented by the Eby model produce the same results by the same generic mechanical means?

"A. It is.

"X Q. 24. The terms 'generic' and 'specific,' as applied to mechanical means, are relative terms, are they not?

"A. They are.

"X Q. 25. And the propriety of their use depends upon the nature of the case in question, does it not?

"A. It does. If the complainant in a case claims a broad construction of a narrow and defective patent, it may be necessary to use these terms.

"(All the answer the word 'does' is objected to by counsel for complainant as being irresponsive).

"X Q. 26. What are the generic mechanical means employed in a device represented by the model 'Eby' for the purpose of communicating the power received from the corn-sheller to the endless belt?

"A. A shaft placed beneath or near the lower end of the carrier and connected with the lower shaft of the carrier-belt by gear in such manner as to permit the universal movement of the outer end of the carrier without stopping the operation of the carrier."

The two machines are therefore precisely the same in principle, producing the same result in the same way.

In the language of the second claim of the reissue, the defendant's device is

"a movable independent cob-carrier wherein are combined a carrying-frame supported at its inner end upon the revolving block, and the central vertical shaft and its connections, whereby said carrying frame can be adjusted both vertically and horizontally without stopping the operation of the endless belt."

The central vertical shaft referred to is the shaft upon which is pivoted the revolving block, plate or turn-table, which supports the inner end of the carrier. The fact that in the defendant's device this vertical shaft is stationary, while the horizontal gear wheel revolves around it, does not alter the technical character of the device; the sleeve of the gear wheel becomes in effect a tubular shaft encircling the stationary shaft. (M. E. Dayton, *ubi sup.* and Transcript, page 27, X. Ans. 3, and pp. 59 and 60, Ans. 4.)

"X Q. 3. Does the shaft in complainant's model exhibit 'King, Hamilton & Co.'s Device' rotate, and is the horizontal bevel spur-wheel fastened firmly to said shaft?

"A. The shaft in said model does not rotate and said driving spur is not fast upon the shaft, but rotates about it. The difference between the two model exhibits in this respect is one of mere mechanical judgment, as in mechanics the two forms of construction are often interchangeable, it being a matter of no consequence whether the shaft rotates with the driving-spur, or the latter rotates upon the shaft."

(Test. of M. E. Dayton, Transcript, pages 26 and 27.)

"Q. 4. Do you find any thing or device described in the several defendants' exhibits heretofore referred to which causes you to modify in any way the opinion heretofore expressed by you to the effect that the machine represented by 'Complainant's Exhibit King, Hamilton & Co.'s Device' contains the invention described and claimed in the reissue Eby patent?

"A. I do not. Said defendants' device contains the same central idea or characteristic principle, put into operation by essentially the same construction, and producing identically the same result as that described in the Eby reissued patent. The differences between said defendants' device and that described and claimed in the Eby patent relate exclusively to mechanical construction and are limited wholly to details of arrangement or mere form, and as such lie wholly within the province of the skilled mechanic. As illustrations of a merely mechanical character of these differences, I point out that the vertical shaft in the 'Complainant's Model Exhibit Eby' is not hollow and is supported in place by a fixed plate with a hole in it, through which said shaft passes, while in the 'Complainant's Model Exhibit King, Hamilton & Co.'s Device' said vertical shaft is hollow or has a hole in it, through which a thick stud rises from the stationary frame, said stud being prolonged to form the axis of the turn-table. These devices are familiar equivalents, often used interchangeably. Again, in the Eby device the beveled gear and the vertical shaft is above the turn-table, while in the defendants' device it is below it. This is a mere change in the relative situation incident to the enlargement of said beveled gear for the purpose of its engagement directly with the gear upon the horizontal shaft when the latter forms the axis of the lower carrier roller. The relation of the horizontal shaft to the vertical shaft is precisely the same in both cases, which is the essential feature of their employment—that is, the horizontal shaft, while swinging with the turn-table or carrier, is always in the same plane with the vertical shaft. Defendants' change of construction in this respect in no way changes the operation of the device, but amounts merely to a lessening of the number of gear-wheels interposed between the vertical shaft and the carrier roller, and is accomplished in a way entirely obvious to a mechanic."

(Testimony of M. E. Dayton, Transcript, pages 59 and 60.)

Nor does the fact that the circular revolving metal plate of the defendants' device, which answers to the revolving block of patent, is situated above the horizontal gear

wheel, instead of below it, as in the patent, alter the character of the functions of such revolving plate as a turn-table upon which the inner end of the carrier rests, and by the use of which, pivoted as it is upon the vertical shaft, the operator is enabled to move the carrier in a lateral direction. (M. E. Dayton, *ubi sup.*)

The gear connections of the second claim are mechanically the same as those shown in the defendants' device. The changes which the defendants have made in these gear connections are formal only, and merely colorable evasions of the complainant's claim. (M. E. Dayton, *ubi sup.*)

The supporting arms which rise from this revolving plate or block form, by their connection with the carrier, hinges by which the carrier is made capable of a vertical motion. These hinges, together with the pivotal connection of the revolving block, thus make the carrier capable of being moved in any direction, both vertically and horizontally, without stopping the operation of the belt.

This was the result aimed at by Eby, and it had never been accomplished before in a cob-carrier, or any kindred machine. The defendants have accomplished this same result, and by the use of the same mechanical means as those discovered and employed by Eby for the same purpose.

The scientific mechanical principles involved in both thsse machines are explained by complainant's expert, Mr. Dayton, as follows (see page 42, Transcript):

"The Eby device is a carrier attachment for carrying away the cobs from the corn-shelling machine, and consists of a belt-carrier mounted in a shaft and propelled from the mechanism of the shelling machine, the said carrier being actuated by such connecting mechanism as permits the carrier to be either raised or lowered at the outer end,

and also to be swung from side to side at its outer end without arresting the operation of the carrying devices. The carrier consists essentially of an endless belt trained over rollers placed one at each end of the carrying trough and transversely to said trough. This was old. The problem which Mr. Eby sought to solve in constructing his device was to provide mechanism for driving this carrier-belt capable of keeping up its carrying motion while the outer end of the carrying trough was being changed in its position, either vertically or horizontally, or both. The essential features of the mechanism which he devised for this purpose are, first, a vertical rotating axis, carrying a gear-wheel located below the inner end of the carrying trough, which axis is not only that of the wheel which it carries, but is also that on which the carrying trough rotates in its lateral movement; second, a horizontal axis or shaft arranged to stand always in the same plane with the vertical shaft, and also always transverse to the carrier or parallel with the axis of the rollers which carry the belt of said carrier. This horizontal shaft is provided with a gear-wheel which engages with the wheel first mentioned as having a vertical axis; third, an axis for the vertical movement of the carrier, which is coincident with the axis of the lower or inner carrying roller. The carrier-belt is driven by rotation of the said inner or lower roller.

"To point out specifically the particular devices shown in the Eby patent for these purposes, he provides a suitable frame or support for the vertical shaft first mentioned, which shaft has a pulley on its lower end and is driven by a belt from the shelling machine. The shaft is vertically supported or held in place by being passed through a hole in the frame and is vertically upheld by a circular plate or turn-table, through which also the shaft passes, and which itself rests on said frame. A collar on the shaft above the plate sustains the shaft. Two arms rise from this circular plate and at their upper ends furnish a horizontal axis for the inner end of the carrier trough, so as to not only uphold said end of the carrier trough at a fixed elevation above the turn-table, but permit the trough to be raised or lowered at its outer end.

"This horizontal axis of the carrier trough coincides with the axis of the lower belt-carrying roller. The hor-

izontal shaft, which is in the same plane with the vertical shaft and which engages with the said vertical shaft by beveled gears, is supported on the turn-table and is always parallel with the horizontal axis on which the inner end of the carrier trough is supported, and may be identical with the lower roller of the carrier. This horizontal shaft being thus parallel with the axis of the lower carrier roller, when not identical with it, is geared with the latter by inter meshing pinions on the outer ends of said shafts and roller, such pinions, of course, remaining always in mesh when the outer end of the carrier trough is raised and lowered. The supporting arms which rise from the turn-table and uphold the inner end of the carrier trough are rigid, so that when the outer end of the carrier trough is moved from side to side such movement rotates the turn-table, and it follows, not only that the vertical axis of said turn-table is the vertical axis on which the carrier trough is laterally moved, but that all the gear wheels retain their intermeshing relation in all positions of the turn-table, and may continue their operation and thereby keep up the movement of the carrier while the position of the carrier trough is being changed in any and every direction."

These mechanical principles may be summarized as follows: There is in the Eby device, *first*, a vertical rotating axis, namely, the central vertical shaft. There is, *second*, a horizontal rotating axis, always in the same plane with the vertical axis. This horizontal rotating axis or shaft carries a gear-wheel which engages with the gear-wheels carried by the vertical rotating axis or shaft; and it may or may not form a *third* axis, namely, the axis for the vertical movement of the carrier. In the Eby model, the horizontal rotating axis, standing in a plane with the vertical axis, is parallel with the axis of the vertical movement of the carrier, but not identical with it; while in the defendants' device, the gear-wheel carried by the vertical shaft or axis is enlarged so as to engage with the gear-wheel carried by the horizontal

shaft which forms the axis for the vertical movement of the carrier. In this manner the horizontal axis for the vertical movement of the carrier, and the horizontal rotating shaft or shafts which always necessarily stand in the same plane with the vertical rotating axis, are made one and the same; but the function of both axes mentioned above as *second* and *third* are, nevertheless, as fully and surely preserved in the defendants' device as in the Eby device; and the mechanical principles which are essential to the operation of each are therefore identical in both devices Hence both the first and second claims os the reissue properly cover, in the scope of the language used, the mechanical principle and device involved in both machines.

INFRINGEMENT OF CLAIMS OF ORIGINAL PATENT.

Not only does defendants' device infringe the two claims of the reissue patent sued upon, it infringes the first and second claim of the original Eby patent, properly construed. It is true the first claim of the original patent uses the words "hook-bolts," but this phrase is shown to be a misnomer by the reference letters and the context of the claim; the parts *e e* are arms rising from the turn-table and serving to support the carrier-frame. The hook-bolts do not have any function in the support of the carrier. Naturally any one reading the claim would turn to the reference letters on the drawings to determine the meaning, and he would find that what were called "hook-bolts" were in reality standards, and that these standards were the supporting devices called for by the claim. Mr. Dayton, in his testimony, makes it clear that the "hook-bolts" cannot be intended, and that the hook-bolts have no supporting mission. (Transcript, page 62, Ans. 9.)

"Q. 9. What is the function or functions of the hook-bolts marked *m* in the original Eby letters patent, and *b* in the reissued letters patent, as shown and described in said original and reissued patents?

"A. The function of said hook-bolts *m m* is, in my opinion, solely that of clamping the turn-table down so as to prevent its rotation after the carrier has been brought laterally to a desired position. The original patent refers to them in two places in the second column —first, at the top of said column, as follows: '*m m* represent bolts secured in the frame-work, the upper ends of which are turned over the block *b*, as shown;' second, at the end of the next paragraph, as follows: 'The carrier may be turned for the purpose of discharging cobs in any desired direction by revolving the block *b*, . . . it being secured in any desired position by means of the hook-bolts *e e*.' The letters '*e e*' should be '*m m*' clearly, as the parts which are marked '*e e*' in the drawing are not 'hook-bolts' and cannot be concerned in securing the block *b*, but are the supports which uphold the inner end of the carrier upon the block or turn-table *b*. By an obvious error in claim 1 in said original patent, the words 'hook-bolts *e e*' are used, the error being in this case in the words 'hook-bolts' and not in the letters *e e*, for the parts referred to in this claim are the parts for supporting a carrier, and these parts are the arms *e e* and not the hook-bolts *m m*.

"The reissued patent speaks of the same hook-bolts as having the same function of holding or clamping the turn-table, but also incidentally and loosely speaking of them as guiding devices. There is no warrant for assigning a guiding function to said hook-bolts, and I do not see that said hook-bolts have anything to do with guiding the turn-table, which is perfectly guided or held centrally in place by the plate marked *b* in the reissued patent, through which, as well as through the turn-table, the vertical shaft passes."

Giving the proper construction to the first claim, reading "arms *e e*," the obvious intention, in the place of "hook-bolts *e e*," which have no function in the purpose of the combination, there is no question but what the

first and second claim of the original patent are infringed by defendants' device. It has "the block *b* adapted to revolve as described," and the arms "*e e* for supporting a carrier as described" of the first claim, and it has "the combination of the block *b* and the central vertical shaft and its connections, substantially as described," of the second claim.

Mr. Dayton says in answer to direct examination (Transcript, p. 50):

"Q. 5. Compare the device represented by the complainant's model exhibit 'King, Hamilton & Co.'s Device' with the claims of the original patent to Henry H. Eby, the reissue of which is sued on in this case, and state whether or not you find the machine represented by said model to be within the claim of said original Eby patent, and give your reasons for any opinion you may express.

"A. I have made the comparison called for by the question, and reply that the said machine, which I will call the 'defendant's device,' falls clearly within the claims 1 and 2 of the Eby original patent, but does not contain all the details specified as elements in claim 3 of said Eby patent. As to the claim 1 of said original patent, which is for the combination of block *b*, adapted to revolve as described, the arms (miscalled 'hook-bolts') *e e*, for supporting the carrier, and the carrier itself, it is plain that defendant's device has all these features, giving to the carrier the same capacity of double movement or productive of the same result and operating in essentially the same way as described in said Eby original patent.

"Claim 2 is for the combination of the block *d* and the central vertical shaft and its connections, substantially as described. This claim applies equally to the defendant's device as to that shown in the Eby patent, of which said claim forms a part. There is in defendant's device the revolving block, there is the central vertical shaft, and there are connections of said vertical shaft of essentially the same kind and of identically the same principle connecting the said vertical shaft with the lower roller of a carrier of the same description, which is mounted in the same way and by the same means upon the revolving

block for the same purpose and with the same result as in the Eby original patent.

"Q. 6. Do you or not consider that there is shown in the Eby original patent and the drawings accompanying the same and the model marked 'Eby' a cob-carrier capable of acting continuously, whether the carrying frame is fixed in position or being swung to a new position, and whereof the carrying frame can be adjusted vertically and horizontally without stopping the operation of the endless belt of the carrier? And give your reasons for any opinion you may express.

"A. I find that the cob-carrying frame shown in the drawings of the Eby original patent is capable of being adjusted both vertically and horizontally without stopping the operation of the carrying-belt; or, in other words of the patent, the carrier is capable of being operated continuously while its position is being changed either vertically or laterally, or both. The only doubt that can arise on this point springs from the question whether or not there are any means shown in the patent for keeping the vertical shaft b^1 permanently in one position, aside from the movable clamping bolt m, by which the turntable may be fastened so as to prevent its rotation after the carrier trough has been turned into a desired direction. In said original Eby patent there is a plate belonging to or fixed upon a frame a a, through which said vertical shaft extends and which is obviously intended to keep said shaft in place. This is shown in both figures 1 and 2 of the drawings, which, taken together, will illustrate its position perfectly. In figure 1 it is shown immediately above the pulley b^2, and extending from one to the other of the cross-beams which are seen in end view adjacent to said pulley; in figure 2 said plate is illustrated as being let into a gain or recess cut into the top surface of the cross-beams and flush therewith. Taking these two figures together, it is clear that said plate is similarly attached to both cross-beams of the frame and surrounds the shaft b^1. If the hole through it be of proper size, it will furnish a lateral bearing for said shaft and keep the same in place. Any mechanic would understand this to be the object of said plate and would fit its orifice to the shaft accordingly. In the 'Complainant's Model Exhibit Eby' this plate is present and gives very free passage to

the said vertical driving-shaft, being provided with an orifice sufficiently closely fitted to said shaft to keep the latter in place. With the aid of this plate for laterally supporting a vertical shaft, it is entirely practicable to release the hook-bolts *m m*, which clamp down the turn-block *b*, and to turn the carrier in any direction without throwing the driving mechanism of the carrier-belt out of gear, and consequently to keep the carrier-belt in continuous operation while the carrier is being swung from one position to any other."

NOVELTY.

The complainant, Eby, conceived the idea of the patented invention in the fall of 1871; he described the same some time during the winter of 1871 and 1872 to Samuel Swisher, John Swisher and William M. Eby. (H. H. Eby, Transcript, p. 37, Ans. 1 and 2; William M. Eby, Transcript, pp. 73–74, Ans. 3–5; Samuel Swisher, Transcript, p. 32, Ans.)

In the month of April, 1872, complainant commenced to build a full-sized machine embodying his invention. This machine was finished in May, 1872; it was put into practical use the latter part of May or fore part of June, 1872, and used continuously in connection with a corn-sheller during June and July of 1872, and throughout the fall of that year. (H. H. Eby, Transcript, p. 37, Ans. 1; J. C. Madden, Transcript, p. 28, Ans.; D. Bunker, Transcript, p. 29, Ans.; S. Swisher, Transcript, p. 32, Ans.)

Parts of this original machine were produced and proved in evidence. The application for the original patent was filed October 28th, 1872.

Defendant Gilman testified that the defendants made machines like the model of their device, he "believes," in the summer of 1872, and that the same was conceived, planned and made by himself. (J. H. Gilman, Transcript, p. 76, Ans. 12–14.)

This testimony was inadmissible, neither Gilman nor any of the other defendants having been named in the answer as prior inventors or users, and this testimony was properly objected to on that ground. (Trans., p. 57.)

Agawam Woolen Co. v. *Jordan*, 7 Wallace, 583.

But even if the statement were admissible and true, it would not defeat the patent; since by the above undisputed testimony the complainant is shown to have been the first inventor.

Agawam Woolen Co. v. *Jordan*, 7 Wallace, 583.

This testimony of Gilman's is not corroborated, and its veracity is rendered highly improbable by the fact that the defendants, who were large manufacturers of corn-shellers at Ottawa, Illinois, offered no cob-stackers for sale as late as 1873 and 1874, and did not exhibit any such cob-stackers at the fair held in Ottawa in the fall of 1872, although there was a public demand for such stackers. (H. H. Eby, Trans., p. 41, Ans. 10; W. M. Eby, p. 31, Ans.; E. S. Gillette, p. 32, Ans.; S. McCormick, p. 32, Ans.; S. Swisher, p. 32, Ans.; G. Gaskill, p. 35, Ans. 6–16.)

Also, the complainant testified that in the latter part of 1873, or early part of 1874, he showed the defendants King and Gilman a model of his cob-stacker, and they said they had never seen anything like it before; but they said they did not think it would pay them to manufacture them. They said they had made some stackers before, but they were not adjustable. (H. H. Eby, Trans., p. 40, Ans. 8 and 9).

This statement is denied by Gilman and King; but complainant's statement is corroborated and Gilman's still further discredited by a letter to complainant from defendants which was produced dated August 9, 1878

(Transcript, pp. 23–24), in which defendant stated:

"We do not feel it necessary to pay you, because we have a device of our own whereby we can get along without infringing on your patent. We can set our cob-stackers at three different points and not use your swivel at all. But to avoid any further correspondence we will pay you twenty-five cents on each machine. This is our ultimatum."

To defeat a patent on the ground of prior invention, or prior use, the burden is upon the defendant to establish the defense beyond a reasonable doubt.

Coffin v. *Ogden*, 18 Wallace, 120.
Western Loom Co. v. *Higgins*, 16 O. G., 675.
Washburn & Moen v. *Haish*, 4 Fed. Rep., 900.
Hayden v. *Suffolk Mfg. Co.*, 4 Fisher, 103.

In any point of view, this testimony of Gilman's is clearly insufficient to invalidate the patent.

Considering the several alleged anticipating devices:

1. The Thornton Provisional Specification of 1868.

The provisional specification, which is unaccompanied with any drawings, imperfectly describes a straw elevator in which is found neither a vertical rotating axis, a horizontal rotating axis, nor an axis for the vertical movement of the carrier. For this reason, and also for the reason that this Thornton carrier is driven by a belt passing over a pulley at the outer end of the carrier, the Thornton device contains none of the essential elements either of the first or second claim of the Eby reissued patent. The nature of the devices employed in the Thornton specification renders the device therein described incapable of vertical and lateral movement at the pleasure of the operator. (Testimony of M. E. Dayton, Transcript, pp. 43 and 58).

This testimony shows also that the Thornton specifica-

tion is so vague and indefinite as not to convey any clear idea of the machine thereby attempted to be described.

Defendants' expert himself admits that the only allusion in the Thornton specification to any vertical adjustment, as he understands it, is in the following words:

"The lower end of this trough is attached, as above described, by a circular plate or stud to the threshing machine, and the outer end is supported on two props which can be lengthened or shortened to suit the elevation required." (Kehr, Transcript, page 109, Ans. 140 and 141.)

These words do not necessarily indicate any vertical adjustment, and they do not describe any means for that purpose. They are entirely consistent with the theory that the legs are lengthened or shortened to adapt the elevator to the inequalities of the ground, and not to adjust it vertically, or to furnish it a support near the head, notwithstanding it is applied to machines of varying height. There is confessedly no allusion to horizontal adjustment, nor to any continuous operation during adjustments.

It is submitted that this Thornton specification cannot be aided to anticipate or limit Eby's invention by the testimony of the defendant Gilman and his expert, Mr. Kehr, both of whom attempt, with the light thrown upon the subject by Eby's patent, to add to the Thornton machine devices not described in Thornton's specification. (Testimony of J. H. Gilman, Transcript, p. 76, Ans. 17 to 19; p. 77, X-Ans. 1 to 25; Kehr, p. 87, 2nd par.; p. 109, X-Ans. 140.)

The Crandall Patent of 1867.

The alleged swinging carrier I of this patent is admitted to have no vertical movement (testimony C. Kehr, Transcript, p. 87, par. 1), and, of course, has, therefore, no horizontal axis for such movement. The carrier-belt is

driven by a shaft running longitudinally with the carrier, which actuates a gear-wheel at the outer end of the carrier. The inner end of this shaft carries a bevel gear-wheel meshing with a horizontal gear-wheel, and any vertical movement of the carrier would throw these last two gears out of mesh. The carrier has, and can have, therefore, no vertical movement.

Nor can this Crandall carrier have any lateral movement while in operation, for the reason that it is supported by the arm *g* connecting it with the fixed arm *h*. When this arm is fixed in position to sustain the carrier at the required angle it prevents any lateral movement of the carrier. When the carrier is out of use this arm may be released and the carrier may then be swung across the machine.

The Crandall patent, therefore, having neither a vertical nor lateral movement when in use, having no revolving block for the inner end of the carrier, having no movable legs and having no gearing applied at the inner end of the carrying frame, lacks all the principal elements of the two claims of the patent sued upon. (Testimony M. E. Dayton, Transcript, p. 44, 2nd par.; p. 58, 2nd. par.)

The Brinsmead Patent of 1861.

Sheet 1 of this patent shows a complicated imperfect device for a straw-carrier. It has no carrying-frame, no movable legs, no block revolving around a central rotating shaft or axis, and no central vertical shaft carrying a horizontal gear-wheel, and no horizontal axis or shaft in the same plane with said vertical rotating shaft or axis, whereby motion is communicated to the carrier. Clearly, also, the Brinsmead device shown on sheet 1 cannot be moved vertically or laterally without stopping the opera-

tion of the carrier. (Testimony M. E. Dayton, Transcript, pp. 44 to 48, and p. 58, 3rd par.)

It therefore contains none of the elements and meets none of the conditions of either of the claims of the patent sued on.

That this Brinsmead carrier shown on sheet 1 cannot be moved laterally without stopping the operations of the machine, appears clearly from the following considerations:

Motion is communicated to the carrier by a band from the pulley *g* on the crank-shaft *h* of the thresher, to the pulley *i* on the movable shaft *j* of the carrier. Of course, therefore, it is necessary that these pulleys *g* and *h* should always be kept in line with each other. When the turn-table is moved laterally, the pulley *i* moves with it to the left or right as the carrier is moved from right to left, or from right to left as the carrier is moved from left to right. The shaft *j*, therefore, has its box necessarily movable upon the bar *l*, and when the turn-table is moved this box must be adjusted on the bar *l*, inwardly when the carrier is moved to the right and outwardly when the carrier is moved to the left, in order to preserve the shaft *j* in parallelism with the shaft *h*, as otherwise the pulleys *g* and *i* will not be in line and the belt will at once be thrown off.

The movable box for the shaft *j* on the bar *l*, in order that such shaft may resist the tension of the belt when the machine is in operation, must necessarily be fastened thereon by a key, wedge or other device, and to adjust this movable box on the bar *l* of course requires the release of this key or other device. Obviously this adjustment cannot be made while the machine is in operation on account of the tension of the belt.

But, furthermore, it is obvious that the movement of

the turn-table, and the necessary movement of the shaft *j* with its box on the bar *l*, will bring the shaft *j* with its pulley *i* nearer to or further from the shaft *h*, and thus require the shortening or lengthening of the belt connecting the two pulleys *g* and *i*; the pulley *g* being moved on the bar *h* into a position opposite that of the pulley *i*. To change the length of the belt will, of course, require that the operation of the machine be stopped.

It is the opinion of the complainant's expert, and it is undoubtedly the fact, that the device is not only clumsy and impracticable, but that it is also inoperative. To move the carrier laterally requires the loosening of the set-screw A, a movement of the pulley *g* on the shaft *h*, the loosening of the movable box carrying the shaft *j*, its movement and adjustment and clamping on the bar *l*, and changing the length of the belt between the pulleys *g*, and *i*, besides the manipulation of the outer end of the carrier. To say that all this can be done without stopping the operation of the carrier is absurd. (Testimony of M. E. Dayton, Transcript of Record, pp. 44 to 48; p. 64, Ans. 5; Cyrus Kehr [for defendants], p. 105, X Ans. 98 to 139).

Sheet 2 of the Brinsmead specification is fully described and commented upon by complainant's expert, Mr. Dayton. (Transcript, pp. 46 to 48; p. 65, Ans. 12 to 13).

The patent does not describe this device shown on sheet 2 in any such clear or definite manner as that the character of the device can be understood; and it is submitted that for this reason the Brinsmead specification ought not to be considered in this case for any purpose so far as relates to the machine shown in the drawings in sheet 2. All the description of this machine on sheet 2 is found on page 5 of the printed specification. In what manner this carrier can be actuated from the thresher, except at a

single angle of elevation, certainly does not appear from the patent or the drawings. Defendants' expert may imagine that he knows how this machine operates, or may conceive devices not shown in the drawings or described in the patent which he thinks may make it operative; but this does not aid the patent as an anticipation or limitation of Eby's invention.

Defendants' expert confesses (Transcript, p. 107, X Ans. 119, 120) that he cannot himself tell from the specification what is the purpose of the support which extends from the spindle supporting the pulley *m*, nor can he tell what is the purpose of the slot in such support. (Transcript, p. 108, X Ans. 126, and 128 to 131).

The testimony of the defendants' expert on the subject of this machine shown on sheet 2 of the Brinsmead patent is found in the testimony from cross-question 119, page 107, down to cross-question 140, page 109, Transcript of Record. It is submitted that this cross-examination of this expert shows that he does not and can not understand, from these drawings and specifications, how the machine is to be made or operated. Certain it is that this device has no supporting and revolving block revolving on a rotating axis; that it has no horizontal rotating axis; that it has no central vertical shaft; and that it can not be adjusted vertically and horizontally without stopping the operation of the machine. That it is an entirely different device from the Eby device is clear from the most cursory inspection of it, and we therefore refrain from further discussion of it as an element in this case. (Testimony of M. E. Dayton, Transcript, p. 65, Ans. 12 to 13).

4. The Bryan Patent of 1871.

The device shown in this patent is a straw-carrier driven by a belt from a pulley on the thresher, communicating with a pulley on the outer end of the carrier. The carrying-frame is not supported upon movable legs; nor are there any devices shown whereby the carrier can be raised or lowered without changing the length of the driving-belt. To change the driving-belt would, of course, necessitate the stoppage of the machine.

The Bryan patent shows no central vertical rotating shaft, nor any equivalent therefor; it shows no turn-table or revolving block, nor any gearing applied at the inner end of the carrier. Hence it contains scarcely a single element of the claims of the patent sued on. Guide-pulleys are shown in this Bryan patent, evidently for the purpose of permitting the carrier to be moved laterally, but it is indisputable that such lateral movement would cause a lengthening or shortening of the driving-belt, necessitating the stoppage of the machine while the adjustment is being made.

In case of the Bryan, as well as other devices, defendants' expert, in the light of subsequent experience, prescribes means whereby he thinks this Bryan patented device might be made so as to be adjustable vertically and horizontally without stopping the operation of the machine; but the patent shows no such devices, and it cannot be aided by such testimony. "Hindsight is a great deal easier than foresight."

The expert testimony on the subject of the Bryan patent is found as follows: Testimony M. E. Dayton, Transcript, pp. 48 to 50, 58; Cyrus Kehr, pp. 87, 102, X-Ans. 81 to 97.

But it is admitted by defendants' expert that the adjust-

ment of the Bryan carrier is not automatic, as is that of the Eby device. (Transcript of Record, Ans. to X Q. 81, page 102.)

5. The Nimbs Patent of 1862.

The Nimbs patent is for a floating grain elevator. This patent shows a turn-table with a vertical axis, and a vertical shaft, communicating motion through gearing and belts to the upper end of the leg of the elevator, which is suspended upon posts supported upon said turn-table.

But it does not deliver from the turn-table to the outer end; it delivers from the outer end to the turn-table. The turn-table is at the head and the outer end is actually the foot. It could not be used upon a corn-sheller as a cob-conveyor, for there the turn-table must be at the foot, as in Eby's construction, and defendants', and the delivery must be from the turn-table to the head. Instead of distributing its load on either side of a stack by a lateral movement, and upon the growing height of the stack by a vertical movement, it concentrates its load towards a single spout and is swung laterally to reach hatchways, and descends vertically, not with a swinging movement, as the pile of grain it is elevating is decreased. It starts from its greatest height and stops at the limit of its descent.

While its turn-table has a vertical axis upon which it may be rotated, the elevator leg has no horizontal axis for any vertical movement of the carrier. The carrier is suspended in a frame, which may be raised or lowered between the uprights G, but this is all the vertical movement of which it is capable. That this elevator leg has no horizontal axis, and therefore no vertical movement

upon such an axis, appears from the following facts: *First*, because the specification says nothing about its having such a movement. *Second.* It is shown depending at an angle from the uprights without any possible support other than what may be derived from rigid attachment with the frame F. *Third.* The lower cross-beam of the frame F, as shown in figures 1 and 3 of the drawings, cannot occupy the position there shown without passing through the carrier leg between the opposite sides of the belt, and between the inner enclosing parts of the two branches of said leg. Barely room for this cross-bar is shown in this figure 2 for passing through the central space between the branches of the leg. A cross-bar in this position would prevent any movement of the leg. *Fourth.* The expansible and compressible section of the discharge pipe p^2, when either fully extended or fully compressed, would be injured by the inwardly and outwardly swinging movement of the elevator leg, and in the compressed position of said pipe-section p^2, the passage through the same would be contracted or closed by such a movement of the elevator leg E. *Fifth.* There is no need of any such movement of the elevator leg on a horizontal axis. Said leg is always required to be in the depending position shown in figures 1 and 3 of the drawings. To remove grain from a boat alongside a floating hull A, the leg would be bodily lowered through the hatchway of the boat, being permanently projected far enough to enter said hatchway. To discharge grain from the hold of the hull A, it would similarly be raised and lowered through openings provided in the proper position in the top of the hull to receive it. *Sixth.* It would therefore be a disadvantage, rather than an advantage, to provide a swinging movement of the elevator leg

E, upon a horizontal axis. (Testimony M. E. Dayton, Transcript, pp. 50–52.)

The Nimbs patent speaks of a lateral or rotating movement upon a vertical axis, but it does not speak of any vertical movement of the elevator leg upon a horizontal axis. The conclusion is inevitable, therefore, that the patentee intended the elevator leg to have no such vertical movement upon a horizontal axis.

Defendants lay stress upon the fact that the Nimbs patent says, "The elevator leg is constructed in the common manner," and argue that the common manner is to hinge legs for similar purposes (Kehr, Transcript, p. 95, X Ans. 31.) But the specification nowhere says the *leg* is constructed *and connected* in the common manner, only that it is *constructed.* The leg is a distinct entity. The term includes the carrier-frame, the carrier, and the cups. All that the phrase affirms is that frame, carrier, cups or buckets and drums are constructed in the common manner. There is no suggestion as to the connections of the leg to the remaining apparatus. As a matter of fact, these connections are not constructed in "the common manner." Nimbs says so himself. Their novel construction constitutes his invention.

The turn-table of the Nimbs device cannot be rotated without stopping the operation of the endless belt of the elevator leg. (Testimony of M. E. Dayton, Transcript, pp. 51 to 54.)

This patent states that the turn-table may be revolved without interfering with the operation of the *machinery.* That this, however, does not mean that the turn-table can be revolved without stopping the operation of the endless belt of the elevator leg, appears from the following facts:

First. This device, being an exceedingly heavy and cumbersome one in which the friction would be great,

means are necessarily provided in it for automatically rotating the turn-table. This is done by loosening the clamps by which the turn-table is held, and permitting the spur-wheel H to act upon the pinion H^2. This, it is said, will cause the table to revolve until the desired position is attained and the clamps are again tightened. But this very statement implies that the operation of the endless belt of the elevator leg must, during the operation of rotating the turn-table, either cease altogether, or else be materially slackened. For it is only by the complete or partial arrest of the rotative motion of the pinion H^2 that the revolution can be thus effected.

To rotate the turn-table of this large and heavy machine safely by the action of the machinery, it would have to be done slowly and carefully, and provision must be made for stopping the rotation at just the right point, as otherwise the leg might be carried round too fast, or too far, and damage might result. It would be utterly impracticable, therefore, to rotate the turn-table while the endless belt of the leg was in full operation. Probably the rotation could be stopped at the right point only by stopping the machinery.

Second. To rotate the turn-table in the opposite direction, the machinery would have to be reversed. This would move the endless belt in the opposite direction to that in which it is designed to move. Such a direction of movement of the endless belt would be utterly useless.

Third. To elevate grain, the leg must be let down into the grain. When the leg is moved, it must necessarily be lifted out of the grain. The operation of the endless belt of the leg while being moved would therefore be utterly useless.

(Testimony of M. E. Dayton, Transcript, pp. 51–54; p. 58, last par.).

For the reason, therefore, that the Nimbs elevator leg has no vertical movement upon a horizontal axis; and because it cannot practically be moved laterally without stopping, slowing or reversing the operation of the belt of the leg, it fails to contain the Eby invention.

The fact that the elevator leg of the Nimbs machine is hung in the sliding-frame F requires the use of tension pulleys bearing upon the belt L^3 in the sliding-frame m^2. This construction requires that the horizontal shaft K^2 shall be set off to one side of the turn-table, and out of the plane of the main vertical shaft I. This construction also involves the use of a second vertical shaft J, out of line with the shaft I. The use of the direct gear-wheel connections employed in the Eby device, for communicating motion from the vertical to the horizontal axis of the carrier, could not therefore be possibly used in the Nimbs device; nor is the Nimbs elevator leg "independent," or removable from the remainder of the machine, as is the complainant's device as described in his patent.

All these considerations conclusively show that the Nimbs device is something totally different from the Eby device, and that it neither performs the functions nor suggests the idea employed in the Eby device.

Neither the DAVENPORT patent of 1837, nor the READING patent of 1841, show carriers which can be moved vertically or horizontally, nor do defendants' witnesses claim that they do, and they are therefore entitled to no weight in this case.

Not a single one of the devices set up by way of anticipation was designed or adapted to be used as a cob-carrier; and it cannot be truthfully said that a single one of them presents the combination patented to Eby.

And even if it were true that some or all of the elements

of the Eby combination are found separately in the devices set up, this fact would not in any manner tend to invalidate or restrict the scope of Eby's claims, unless some one or more of the devices alleged to anticipate contains all of Eby's combination.

"Where the thing patented is an entirety, consisting of a single device, or a combination of old elements incapable of individual and separate use, the respondent cannot escape the charge of infringement by alleging or proving that a part of the entire thing is found in one patent, printed publication or machine, and another in another prior exhibit, and still another in a third one, and from the three or any greater number of such exhibits draw the conclusion that the patentee is not the original and first inventor of the patented improvement."

Bates v. *Coe*, 98 U. S., at page 48.

It was not shown that a single one of the devices shown in the patents which are set up in the answer in this case was ever made or used, much less that any of them ever went into general use. They were none of them cob-stackers, and the proof shows that Eby was the first inventor to produce a successful cob-stacker. His invention has gone into general use, and is considered indispensable as an attachment to corn-shellers designed for outdoor use, and Eby's cob-stackers accompany the sale of all, or nearly all, of such corn-shellers. (Testimony John Q. Adams, Transcript, p. 68–69; Charles E. Whitman, pp. 71–72; H. H. Eby, pp. 21–22.)

The fact that Eby's cob-stacker has gone into general use, shows its great utility and patentable novelty and merit over prior constructions.

Washburn & Moen Manfg. Co. v. *Haish*, 4 Fed. Rep., 900.

Smith v. *Dental Vulcanite Co.*, 93 U. S., 486.

Validity of Reissue.

Defendants' device, as has already been shown, clearly infringes claims 1 and 2 of the original Eby patent, the reissue of which is sued on.

Claim 1 of the original reads as follows:

"1. The combination of the block *b*, adapted to revolve as described, and the hook-bolts *e e* for supporting the carrier, as described."

It is perfectly clear that the words hook-bolts *e e* used in this claim refer to the arms *e e* shown in the Eby drawings.

The words "substantially as described," in this claim, relate only to the material features of the combination. They do not restrict the claim to every specific detail shown. Such claim will, notwithstanding the use of these words, cover equivalents of the devices shown.

Waterbury Brass Co. v. *Miller*, 4 Fisher 48, at p. 68.

Reed v. *Chase*, 25 Fed. Rep., 94.

Defendants' device contains the combination set forth in this second claim of the original Eby patent. Defendants' device has the revolving block, the central vertical shaft, and gear connections connecting said vertical shaft with the lower roller of a carrier, which is mounted in the same way and by the same means upon a revolving block, for the same purpose and with the same result as in said original Eby patent.

And it is admitted by the defendants' expert that the gear connections of the defendants' device are generically equivalent to those shown in the original Eby patent. (Testimony of C. Kehr, Transcript, pp. 92-94, X. Ans. 18-26.)

But these first and second claims of the Eby original patent were in view of the art too broad; or at least they were so broad as to endanger the patent.

Neither of them had any limitation as to the type of driving connections. Both were so broad that they embraced all structures containing the enumerated elements, whether these structures were of such a character as to require interruption of operation during the adjustments, or to be capable of continuous operation as in the Eby structure.

There is shown in the Brinsmead patent a turn-table with arms supported resting thereon for supporting a carrier.

The Bryan patent also showed a carrier provided with a casting rotating upon a vertical shaft projecting from the base-plate H, and provided with arms rising to the opposite sides of the carrier-frame.

The first claim of the Eby original patent was capable of a construction so broad as to have been substantially anticipated by the devices shown in both the Brinsmead and the Bryan patent. (Testimony of M. E. Dayton, Transcript, pp. 54, 55, 56.)

The Nimbs patent had a revolving block with posts rising therefrom, similar in location and general form with the arms *e e* of the Eby original patent. But these arms did not furnish a hinge or horizontal axis for the vertical movement of the elevator leg, since, as has been shown, said elevator leg had no movement upon a horizontal axis.

The second claim of the Eby original patent was capable of such a broad construction as to be liable to be anticipated by the turn-table and vertical shaft of the Nimbs device. (Testimony M. E. Dayton, Transcript, pp. 55, 56; Kehr, p. 94, X Ans. 27, 28.)

It was perfectly competent, therefore, by the very

terms of the patent laws relating to reissues (Revised Statutes, U. S., Sec. 4916), for the complainant to reissue his patent at any time, in such a manner as to narrow the claims thereof. This he has done in his reissue. Both of the claims of the reissue are very clearly narrower than both the first and second claims of the original patent. (Testimony M. E. Dayton, Transcript, p. 63, Ans. 11.)

"Q. 11. Please compare the several claims of the Eby original patent with the several claims of the Eby reissued patent sued on in this case, and state whether or not you find the claims of said reissued patent to be broader or narrower than the claims of the original patent, and give your reasons for any opinions you may express.

"A. I regard the reissued claims 1 and 2 as narrower than claims 1 and 2 of the original patent: First, because each of said reissued claims contains or specifies more elements than are contained or specified in either of said original claims; and, second, the invention is limited by the terms of the reissued claims to carriers, while in the said two original claims there is no such limitation; and, third, the gearing mentioned in the first claim of the reissue and the "connections" of the central vertical shaft, referred to in the second claim of the reissue, are in said claims specifically limited to those which are not only substantially as described, but which are, as stated in the first claim of the reissue, capable of acting continuously, whether the carrying-frame is fixed in position or being swung to a new position, and are, as stated in the second claim of the reissue, specifically adapted for the vertical and horizontal adjustment of the carrier without stopping the operation of the endless belt. By the terms of the second original claim there is no such restriction as to the continuous operation of the carrier while being adjusted.

"As I have heretofore pointed out, there are three elements expressed in the first original claim, namely, the revolving block or turn-table *b*, the supporting arms *e e*, and the carrier. In the first reissued claim there is contained in the words 'supporting and revolving block,' as I understand them, both the vertical block and the sup-

guage of the second claim of the original patent, which refers to the gearing as "the central vertical shaft and its connections."

But there was certainly nothing in the art nor in the language of the original second claim itself, which limited it to the specific form of gearing shown in the drawings, nor which would prevent it from covering any equivalent form of gear connections. It is perfectly clear, and also admitted by the defendants' expert, that merely enlarging the gear-wheel on the vertical shaft to such an extent that it would mesh with the gear-wheel on the inner roller of the carrying-frame, would be, mechanically, an equivalent construction to that shown in the drawings and described in the specification of the original Eby patent. (Testimony of Cyrus Kehr, Transcript, pp. 92 to 93, X Ans. 18 and 19). And, therefore, such construction was covered by the second claim of the original Eby patent.

The limitation involved in these claims to the gearing capable of acting continuously whether the carrying-frame is fixed in position or being swung to a new position, and without stopping the operation of the endless belt, is merely descriptive of the mode of operation of the combinations claimed. It defines these combinations so that they may not be erroneously taken to cover more than the inventor is entitled to claim as novel. Without such a definition of the mode of operation, the claims would simply be the same as the original claims in the surrendered patent and would be anticipated by many of the prior patents set up in answer by the defendants on account of their undue scope or breadth, which would cover these old structures.

The original patent described a device with gearing applied at the inner end of the carrying-frame and capa-

ble of being adjusted vertically and laterally, without stopping the operation of the machine. But the claims of the original were not so limited; they covered the combinations so broadly as to bring within their scope carriers capable of being adjusted only when the machine was stopped. The reissue claims exclude the latter.

Eby's invention did not consist in the specific form of gear-wheels shown and described in his original patent. He says, in the first column of the original patent, that his invention consists mainly in the combination of suitable devices for actuating the carrier, with means for adjusting the carrier to cause it to deposit cobs in any desired direction, and nothing in the original patent shows that he regarded the particular form of gear connections shown as being essential to his invention, as clearly they were not. Eby showed, as he was bound to do, one form of gear connections, and when he had done this he must be understood to have claimed and by law to have actually covered, not only the precise form described, but all other forms which embody his invention; it being a familiar rule that to copy the principle or mode of operation described is an infringement, although such copy should be totally unlike the original in form and proportions.

Winans v. *Denmead*, 15 Howard, 342.

Thomson Meter Co. v. *National Meter Co.*, C. C. A., 3rd Circuit, 65 Fed. Rep., 429, and cases there cited.

There is therefore no enlargement in the first claim of the reissue of the second claim of the original with respect to the gear connections.

Another reason for reissuing this patent, besides that of narrowing the claims, was because of a clear clerical error in the original, with respect to the arms of the carrier.

In the specification of the original patent (in the first column, near the bottom), it was stated that the "inner end of the carrying-frame is pivoted to arms *e e*, rising from the block *b*, as shown." Further on it is stated (in the next column) that "the block *b* is secured in any desired position by means of the *hook-bolts e e*," and the first claim is for "the combination of the block adapted to revolve as described, and the hook-bolts *e e* for supporting the carrier, as described."

Now, it is perfectly clear that the letters "*e e*" designate not hook-bolts, but the supporting arms, as clearly appears from the drawings, and as the hook-bolts (which are marked *m m*) in no way support the carrier, the words "hook-bolts *e e*," in the first claim of the original, certainly are mistakenly used, instead of the word "arms," for the arms do support the carrier. (M. E. Dayton, Transcript, p. 62, Ans. 9).

Here was a mistake which justified a reissue for the purpose of correcting it.

There may be said to be a still further reason for this reissue. The specification of the original failed to describe the plate or support *b*, referred to in the first column of the reissue, and shown and lettered in the drawings of the reissue. This plate is more particularly illustrated in figure 3 of the drawings of the reissue, and is also shown in the model, marked "Eby Device." This plate not only serves as a support for the revolving block B, but it also affords a seat or box for the vertical shaft, which, passing through it, as well as through the revolving block, holds the revolving block in position at all times and prevents it from sliding out of place. The clamps or hook-bolts, marked b^1 in the reissue, are designed merely for the purpose of clamping the revolving block and preventing it from revolving while the machine

is in use. It is not the function of these hook-bolts to prevent any lateral or sliding motion of the revolving block, this being effected by the use of the plate *b*. (Testimony H. H. Eby, Transcript, p. 39).

And it is found in actual use of the machine that the hook-bolts b^1 are not absolutely necessary to prevent the revolution of the revolving block, when the machine is in operation, the weight of the carrier and the position of the legs being sufficient for this purpose. (H. H. Eby, *ibid.*)

This metal plate *b*, although not lettered or referred to in the specification of the original patent, was shown both in the drawings of the original patent and in the model accompanying the original application. An enlarged copy of the drawings of the original patent of the same size as that accompanying the original application shows clearly this metal plate beneath the revolving block.

"In said original Eby patent there is a plate belonging to or fixed upon the frame *a a* through which said vertical shaft extends, and which is obviously intended to keep said shaft in place. This is shown in both figures 1 and 2 of the drawings, which, taken together, will illustrate its position perfectly. In figure 1 it is shown immediately above the pulley b^2 and extending from one to the other of the cross-beams, which are seen in end view adjacent to said pulley. In figure 2 said plate is illustrated as being let into a gain or recess cut into the top surface of the cross-beam and flush therewith. Taking these two figures together, it is clear that said plate is similarly attached to both cross-beams of the frame, and surrounds the shaft *b'*. If the hole through it be of proper size, it will furnish a lateral bearing for said shaft and keep the same in place. Any mechanic would understand this to be the object of the plate and would fit its orifice to the shaft accordingly." (Testimony of M. E. Dayton, Transcript, p. 61, Ans. 6.)

The model accompanying the original application has

been destroyed by fire, as appears from the certificate from the Patent Office, as well as from the stipulation of the parties to this suit.

But a representative of the original model has been reproduced and proved in evidence, being identical with the "Complainant's Model Exhibit Eby." (Testimony H. H. Eby, Transcript, page 40; Wm. M. Eby, page 73, Ans. 3.)

This testimony shows that this supporting metal plate was in the original model.

It is well settled that anything shown in the original drawings or model accompanying the original patent may be incorporated into the reissue, although the same was not referred to in the specification of the original patent.

Seymour v. *Osborne*, 11 Wall., 516, at page 544.

Meyer v. *India Rubber, etc., Co.*, 11 Fed. Rep., 891.

Eames v. *Andrews*, 122 U. S., 40.

And the fact that the Commissioner in granting the reissue permitted a description of such metal plate *b* to be incorporated into the specification affords presumptive evidence that such metal plate was shown in the original model and drawings, the reissue having been granted prior to the destruction of the model by fire.

Meyer v. *India Rubber, etc., Co.*, 11 Fed. Rep., 894.

It was perfectly legitimate for Eby to correct by reissue the error in the original as to the supporting-arms; to more specifically describe in the specification the supporting metal plate *b*; and to narrow the claims of the original by restricting them in the manner set forth in the reissue.

"The Commissioner was invested with authority to determine whether the surrendered patent was invalid by reason of a defective or insufficient specification, or because the patentee claimed more than he had a right to claim as new; and if he found such to be the case, and he found also that the error had been due to inadvertance, accident or mistake, without any fraud, his decision was conclusive, and not open to review by the courts."

Ball v. *Langles*, 102 U. S., 126.

Russell v. *Dodge*, 93 U. S., at page 464.

Seymour v. *Osborne*, 11 Wall., 544.

"There can be no dispute that an inventor is entitled so to amend his specification that it will employ perspicuous and artistic language and enable him to hold all that he has invented. . . . Grant that the description is not so clear, the fact cannot be disputed that every element of the combinations in dispute is found in the first description filed. There is no doubt about the rule of law found in *Railways Co.* v. *Sayles*, 97 U. S., 554, and the numerous authorities which follow it." *Beach* v. *American Box Machine Co.*, 63 Fed. Rep., 604.

These cases are not in conflict with those recent cases in the Supreme Court, which decide that the court may compare the original and reissue for the purpose of ascertaining whether the reissue is for the same invention as the original, and whether the claims have been enlarged in the reissue, after the lapse of an unreasonable time.

For it is now well settled that where there is any claim in the reissue that is not broader than the claim of the original patent, a long lapse of time between the grant of the original patent and the application for the reissue, even where there is no excuse shown for the delay, does not invalidate such claim of the reissue.

Thompson v. *Wooster*, 114 U. S., page 115.

Gage v. *Herring*, 107 U. S., 649.

Reed v. *Chase*, 25 Fed. Rep., 95.

Eclipse Windmill Co. v. *Woodmanse Windmill Co.*, 24 Fed. Rep., 650, at page 653.

Spaeth v. *Gibson*, 15 Fed. Rep., 810.

Gould v. *Spicer*, 15 Fed. Rep., 344.

Cote v. *Moffitt*, 15 Fed. Rep., 345.

Sewing Machine Co. v. *Frame*, 28 Off. Gaz., 96.

In *Thompson* v. *Wooster*, 114 U. S., it is said at page 115:

"In the original patent the patentee may have claimed as his invention more than he had a right to claim as new, a mistake which he had a right to correct at any time."

Where the claim of the original is not enlarged in the reissue, but has merely a more exact and definite statement than the original patent contained, the reissue is good, although the original claim would have received the same construction.

Gold and Stock Telegraph Co. v. *Commercial Telegraph Co.*, 31 Off. Gaz., 1559, at page 1560.

Sewing Machine Co. v. *Frame*, 28 Off. Gaz., 96.

Where the claim of the reissue is narrower than one claim of the original patent there never can be any pretense that the patentee has abandoned to the public any part of his invention covered by such original claim; and hence, no matter how long the delay in applying for the reissue, the public are not prejudiced by such delay, since the invention has always been covered by the claim of the original.

Hartshorn v. *Eagle Shade Roller Co.*, 18 Fed. Rep., 90.

And if the device alleged to infringe the reissue was an infringement of any claim of the original patent, it will be held to infringe the reissue, if any claim of the reissue is broad enough to cover it.

Reed v. *Chase*, 25 Fed. Rep., 95, and cases cited above.

In the case at bar, as we have shown, the defendants' device was an infringement of two claims of the original patent, and it is also an infringement of the two claims of the reissue, both of which are narrower in their scope than the two original claims referred to. Hence the patentee cannot be said to have abandoned his invention by his original patent, since two of the claims of the original were broad enough to cover it.

The fact that the original patent did not state, as does the reissue, that the direction of the carrier could be changed without stopping the operation of the endless belt, does not in any manner affect the validity of the reissue. Such effect was clearly apparent from the description, model and drawings of the original patent.

In any event, the mere statement of certain capacity of the machine in the reissue does not subject the patentee to the imputation of incorporating new matter; for he is entitled to all the uses to which his patent may be applied, and to all the beneficial results which legitimately follow the use of his instrumentalities.

Putnam v. *Yerrington*, 2 Ban. & Arden, 237.

The appellant in this case has made and shown a valuable invention, one which has become indispensable in the use of corn-shellers, and which displays a very considerable degree of patentable originality and merit.

Nothing has been suggested by way of defense except the baldest technicalities unsupported either by justice or by the law. His patent is certainly entitled to the presumption of validity, and we think we are justified in asserting that nothing has been shown in this case to cast a reasonable doubt upon his title to the invention as secured by the reissued letters patent.

Like many others, he has spent time and money, and labored hard to develop his invention, secure his patent,

and defend his title. He has honestly limited his claims by reissue to what time and struggle have proven to be the exact scope of his invention. That this is true is abundantly shown by the fact that several of the alleged anticipations set up against him do anticipate the original claims on account of their undue scope, but none of these alleged anticipations meet the reissue claims, because excluded therefrom by the limitations now imposed.

Respectfully submitted,

JOSEPH G. PARKINSON,

HAROLD G. UNDERWOOD,

Of Counsel.

IN THE

Supreme Court of the United States,

OCTOBER TERM, A. D., 1894.

HENRY H. EBY, *Appellant*,
vs.
SOLOMON E. KING, HUGH H. HAMILTON, JOHN H. GILMAN, *Appellees*.

Appeal from Circuit Court of the United States for the Northern District of Illinois.

Brief and Argument for Appellees.

May it please the Court:

This is a suit in chancery instituted by appellant against appellees on January 10, 1891, for alleged infringement of re-issued Letters Patent No. 7851 issued to appellant August 21, 1877, on application filed March 20, 1877, for improvements in the cob-carrier department of corn shellers.

The patent sued on is a re-issue of original U. S. Letters Patent No. 134,790 dated January 14, 1873. The defenses are (Pages 9, 13, 14) that the claims of said re-issued Letters Patent are not for the same invention as that for which the original Letters Patent was granted.

Second, that new matter was included in the specification and claims of said re-issued patent.

Third, that the claims in said re-issued Letters Patent had been intentionally widened and broadened, and that complainant has attempted to embrace therein and secure thereby, other and different alleged inventions than were embraced and contained in the claims of said original patent.

Fourth, that the application for said re-issued patent was not filed until more than four years had elapsed from the time of the issue of said original patent and that complainant had therefore been guilty of such laches in that behalf, as to have lost all rights he may otherwise have had to obtain such re-issue.

Fifth, that said original patent was at no time inoperative, or invalid by reason of a defective or insufficient specification, or by reason of complainant by inadvertance, accident or mistake having claimed too much in said original patent, and that for the foregoing reasons and each of them, the Commissioner of Patents had no jurisdiction to grant said re-issued Letters Patent, and that the latter is void.

Said answer further denies that complainant's alleged invention was patentably new at the time of his application therefor, by reason of the same principle and operation having been shown in certain earlier patents mentioned in said answer.

Said answer also denies that the defendants or either of them have at any time made or sold any cob-carriers constructed according to, or containing the alleged invention mentioned in said re-issue patent.

The Circuit Court, Judge Gresham, decided (Page 16) that the defendant's device did not infringe the patent, that the re-issue was for new and different matter; was obtained to broaden the claims of the original, and that the re-issued patent was therefore void, and dismissed the biil for want of equity.

From the testimony of appellant (complainant below) (Page 38) his first machine was completed in the month of May, 1872, and from an affidavit on behalf ot defendant, admitted and used as deposition (Page 111), defendants for the two years next preceding March 20, 1877, had been making and selling the machine for the manufacture and sale of which they had been sued in this cause. This affidavit was placed in proof simply to establish the continuity of the manufacture by the appellee of the alleged infringing machine for the two years next before appellant filed his application for said re-issued patent.

But the testimony shows that the appellees began the manufacture of their machine the same

year that appellant claims to have made his first machine. John H. Gilman (Page 76) testifies that he built the first machine for appellees, he believes in the summer of 1872, and at that time had not seen or heard of appellant's stacker, nor any stacker like the one constructed by himself.

And Thomas McKinley (Page 83) states that Allen Jordan then in the employ of the appellees exhibited a corn sheller, with a movable cob stacker attached, at the fair in Ottawa, Ill., somewhere in the middle of September, 1872—thinks it was the 16th but cannot state as to its mechanical construction.

The appellant (Page 40) had stated that in the latter part of 1873 or early part of 1874 he had called upon Messrs. King & Gilman of the appellees in reference to their making his cob stacker and showed them his model thereof. That they stated that they had made and sold one or two cob stackers but they were stationary and not adjustable.

Messrs. King & Gilman subsequently testified (Pages 110 and 111) that they had no such interview with appellant. Mr. Gilman states that he never saw a model of the Eby stacker until the day he first testified in this case (Jnne 5, 1883); that he had neither seen nor heard of appellant until within less than two years before commencement of this suit; and that he never heard of the appellant's cob carrier until several years after the appellees as King, Hamilton & Co. had been manufacturing cob carriers like the model which

appellant has put in evidence as representing the alleged infringing machine marked "King, Hamilton & Co's. device."

And Mr. King states that the only time he ever saw the appellant was shortly before the commencement of this suit, when he claimed they were infringing his patent, and that he never saw nor heard of appellant's cob carrier until some years after appellee had been manufacturing their movable cob carrier.

The position of appellees is, first; that in view of the prior state of the art, and the fact that appellant is at the most a mere improver therein, the scope of the claims of his patents is to be restricted to the specific devices which he uses as instrumentalities for accomplishing the purpose intended, and when so understood, appellee's construction is not within the claims of said patent.

Second, that their construction was clearly not within the limited claims of appellant's original patent and that even though their present construction should be held to be within the claims of the re-issued patent sued, yet inasmuch as the application of said re-issue was made more than four years after the date of the original patent, and that meanwhile appellees had been making and selling their present construction for at least two years, the appellant is estopped from alleging infringement of said re-issued patent as against these appellees.

Third; that the failure to claim the particular combination not claimed in the original patent and and now claimed in the re-issue, was not due to any such inadvertance or mistake as would authorize the claiming of it in the re-issue, and that the failure to claim such combination originally occurred under such circumstances, and was accompanied with such full knowledge of all material facts, as to amount to an abandonment of that particular combination to the public.

Fourth; that both the purpose in and the effect of the re-issue if sustained, was and is the enlarging of the claim of said original patent and that a re-issue for such purpose and with such an effect could not be lawfully had, particularly after the lapse of four years and the adoption and use by the public of such latter combination meanwhile.

Appellees have put in evidence copies of patents of date prior to the alleged invention of appellant which establish that it was not new at the date of appellant's alleged invention to provide an elevator trough susceptible to movement both vertically and laterally. Mr. Kehr, appellees' expert, on pages 85, 86 and 87 gives a detailed description or explanation of these earlier patents with the following conclusion;—

"The effect of these prior patents upon the interpretation of the complainant,s original patent, is quite important. It will be seen that complainant's result has been accomplished by several of these prior inventors. All of them used a portion of complainant's construction, and a portion of

them all the elements in almost the identical arrangement. The only differences to be found between complainant,s original patent and the prior patents under consideration are specific differences, and complainant's original patent must therefore be understood to be for strictly specific combinations. In view of these prior devices it is even questionable whether complainant was entitled to any patent at all."

We believe we are speaking within bounds when we assert that there is more difference between the construction originated and used by appellees, and that of the appellant than between the structure of the latter and these prior devices.

AN IMPROVER IS LIMITED TO HIS SPECIFIC FORM OF DEVICE.

"If the invention claimed be itself but an improvement on a known machine by mere change of form or combination of parts, the patentee cannot treat another as an infringer who has improved the original machine by use of a different form, or combination, performing the same functions."

McCormick v. *Talcott*, 20 How., 405.

"If the advance toward the thing desired is gradual and proceeds step by step, so that no one can claim the complete whole, then each is entitled only to the *specific form of device* which he produced, and every other inventor is entitled to his own specific form."

Railway Co. v. *Sayles*, 97 U. S. 556.

Aran v. *Manhattan Ry. Co.*, 132 U. S, 85.

THE CLAIM BEING A STATUTORY REQUIREMENT, MEASURES AND LIMITS THE PATENTEE'S RIGHTS.

"Some persons seem to suppose that a claim in a patent is like a nose of wax, which may be twisted in any direction by merely referring to its specification, so as to make it include more than, or mean something different from, what its words express. * * * A claim is a statutory requirement prescribed for the very purpose of making the patentee define precisely what his invention is, and it is unjust to the public, as well as an evasion of the law, to construe it in a manner different from the plain import of its terms."

White v. *Dunbar*, 119 U. S., 47.

"Courts should regard with jealousy and disfavor any attempt to enlarge the scope * * * of a patent once granted, the effect of which would be to enable the patentee to appropriate other inventions made prior, or to appropriate that which has in the meantime gone into public use."

C. & N. W. R'y Co. v. *Sayles*, 97 U. S., 554.

"The claims rigidly control."

Judge Wheeler, in Grant v. *Walker*, 47 O. G., 1220.

"It is wholly irrelevant to inquire whether the patentee was obliged to limit himself by the ruling of the patent office. It is enough to say that he did so limit himself."

Judge Blodgett, in Toepper v. *Goetz et al*, 41 O. G., 933.

It will be serviceable at this point to refer to the language and scope of the claims of the original patent. The claims are on page 113 of the printed Record.

A circular disk is placed flat upon cross pieces as shown in Figure 5. This disk is called block *b*. On this block *b* the lower end of the carrier is supported by means of arms *e e* attached at their lower ends to the upper surface of said block and at their upper ends pivotally attached respectively at each side of the lower end of the carrier or elevator trough. The block *b* is held in place by bolts, the upper ends of which are hooked over the edge of this block *b* and the lower ends of which are fastened in the cross pieces on which said block rests. These bolts are called both *m* and *e* in the specification. The first claim is as follows:

1. The combination of the block *b*, adapted to revolve as described, and the hook-bolts *e e*, for supporting a carrier, as described.

It was contended by the expert and counsel for the appellant in the court below, that in this first claim "bolts," was a mistake for "arms," for the reason that the hook-bolts did not "support the carrier" as stated in said claim. But it is clear from the entire specification that the word "hook-bolts" in said first claim was intended to be used as it appears in said claim. There is nothing else shown in the original patent to hold said circular block *b* in position, and those hook-bolts are evidently for that purpose and none other. They are distributed around the outer edge of said block so as to leave

the center of the latter free for the rotation of the vertical shaft which rotates in the center of said block. In the specification just before the claims, the said block *b* is referred to as "it being secured in any desired position by means of the hook-bolts *e e*" then follows the first claim in which the same parts are called "hook-bolts *e e*." The above quoted language conveys the idea, first that the said hook-bolts secured said block, and second, by the use of the words "secured in any desired position" it is obvious that it was the intention to turn said block *b* as stated in the paragraph preceding the claims, "for the purpose of discharging the cobs in any desired direction" and that the function of the hook-bolts was to hold or secure the said block in any of these "desired" or selected positions. The words in claim 1 "for supporting a carrier" are not limited to the hook-bolts *e e*, but have as their antecedent the entire preceding portion of the claim; i. e. the *combination* of the block *b* and the hook-bolts for supporting said carrier as before stated, "in any desired position," the block *b* and hook-bolts being therefore combined or co-operating for supporting the carrier. It is not pretended that any such combination appears in appellee's structure. In fact in the latter there is no attempt to lock the base of the carrier in any position, but said base is free to rotate laterally as the outer or upper end of the carrier may be carried laterally in the arc of a circle.

It will be noticed that this claim is quite limited, being practically for the combination of a circular block, placed horizontally, and hook-bolts, at its periphery to hold it in position.

The second claim is as follows;—

2. The combination of the block *b* and the central vertical shaft and its connections, substantially as described.

This claim, as stated by the expert (Page 88 of Record) means the block *b*, and vertical, rotary shaft projected through the center of said block, the bevelled gear at the top of said shaft, which meshes into the gear supported by a short horizontal shaft, seated on the upper side of said block, said horizontal shaft communicating with the lower shaft or roller of the carrier by means of a pair of spur wheels. This claim is also quite specific and therefore necessarily limited.

In appellant's structure, his spout frame *D* was supported upon two arms *e e* rigidly fastened at their lower ends to the block *b*, therefore, in order to turn the spout laterally, the hook bolts *m* had to be released and the block *b* rotated to the desired position and the hook bolts again fastened. This is what is meant by the language at the close of the first long paragraph in the second column of the specification—"it (the block *b*) being *secured* in any desired position by means of the hook bolts *ee*." This is what is meant in the statement of invention in original patent by the phrase, "means for adjusting the carrier," omitted from the reissue.

(It is true that in the reissued patent there has been introduced a cross-plate or support *b*, sunken into the former cross piece of the main frame, and the axis of the block *b* passing through this plate, would assist in holding the block *b* from slipping

so as to drop down between the aforesaid cross pieces. It will be noticed in figure 1 of the reissue that one end of this cross plate is shown countersunk in said cross piece. By comparing figure 3 of the original patent with said figure 1 of the reissue the absence of said cross plate is obvious, so that it is manifest that there is no appearance of said cross plate in the original drawings, nor is there any mention of it in the original specification.)

The subject matter, therefore, of the first claim in the original patent is this block *b* and the hook bolts *e e* which hold said block from lateral movement either sidewise or lengthwise of the machine. This block in said claim 1 is also characterized as being "adapted to revolve as described"—that is that said block, by releasing the hook bolts, can be turned horizontally to permit a lateral swing of the spout *D*.

In defendant's machine there is simply a fixed stud, upon which the braces which support the spout are permitted to turn laterally. But this stud is not "adapted to revolve," as is the block *b* in complainant's patent. The fixed stud of defendant's not being required to rotate, or change its position in any degree, does not require the hook bolts of complainant as a means of retention.

To infringe claim 1 of the original patent would require the use of the two elements therein in combination, to-wit: the block *b* and hook bolts *e e*. The defendants have neither a supporting block "adapted to revolve," nor hook bolts adapted to hold the same at different points in its rotation.

The second claim of complainant's original patent is for the combination of the aforesaid block *b*, the central vertical shaft *b'*, and the connections of the latter "substantially as described." The block *b* here referred to means, of course, the block *b* which supports the carrier, and which is "adapted to revolve." The main and first "connection" of said vertical shaft named in said claim 2 is the short horizontal shaft of complainant, which carries at its inner end a pinion *c*, and and at its outer end the driving gear *c'*. Neither this shaft or either of its gear wheels are used in defendant's machine.

The original claim 3 is a combination of all the specific devices shown in complainant's structure, nearly all of which are absent from defendant's construction. And inasmuch as under the authorities hereinbefore cited, complainant, not having been the originator, broadly, of a swinging or adjustable carrier, is limited to his specific device; though defendants attained the same result, they, having produced said result by other and different means, are not guilty of infringement of either of said three claims of said original patent.

Claim three is solely for the co-ordination of the numerous specific parts named therein. It cannot plausibly be contended that appellee's structure contained the combinations named in either of said three original claims.

THE RE-ISSUE CLAIMS ARE BROADER THAN THOSE IN ORIGINAL, AND VOID.

It is entirely clear that appellant in his original patent relied upon and claimed the hook-bolts as

the means of guiding the block *b* in its partial rotations to swing the end of the elevator or carrier and for securing said block in any of such selected positions. In the description of the invention one element named is, "means for *adjusting* the carrier to cause it to discharge the cobs in any desired direction." The description of Figure 4 is "a view of the bolts for *securing* the block." In the second paragraph preceding the claims "*m m* represent bolts secured in the frame work the upper ends of which are turned over the block *b* as shown." Next preceding the claims "it (the block *b*) being *secured in any desired position by means of the hook-bolts e e.*"

No other mode or means is suggested for holding the block *b* from slipping laterally during these partial rotations. The carrier being supported at its lower end on the arms *e*, which are rigidly attached to the upper surface of the block *b*, no lateral swing of the carrier could take place until the hook-bolts were loosened sufficiently to permit the block *b* to be proportionately rotated under the hooks of said bolts. This would necessarily involve a stoppage of the machine, because, in order to "secure" the block *b* in its new position, the hook-bolts had been previously tightened and would need to be loosened and re-tightened.

In the re-issue for the first time appears the idea of changing the direction of the carrier to the right or left without stopping the operation of the machine, an operation which would then consist simply in raising the legs *G G* of the carrier and carrying the same to the right or left. As a result of the interpolation of this idea, the two

claims of the re-issue are generic, and consist of the combination of *any* supporting and revolving block, *any* carrying frame whose inner end is supported on said block and outer end supported on movable legs, and any continuously acting gearing applied at the inner end of the carrier, whether the carrier is in position, or being swung to a new position.

As a platform for these obviously expanded claims which would cover all structures, having the capacity therein named, certain preparatory changes are made in the new specification. In the statement of the invention the phrase, "means for adjusting the carrier," which occurred in the original patent is omitted in the re-issue, and in the latter "adapted to be adjusted both vertically and horizontally upon its supporting frame and driving mechanism without interfering with or stopping its operation," is inserted. A new element not named in the original specification and we think not shown in the original drawings is introduced; to-wit, "a plate or support *b*," through which the vertical shaft *C* (formerly *b'*) is said to pass, the said plate *b*, through the medium of said shaft being relied upon to hold the block *B* in position, and the hook-bolts being now used only for the purpose of guiding and holding the parts "*more rigidly* in their new position."

As a succinct representation of the variances between the respective specifications of the original and re-issued patents we submit a comparison of the same in parallel columns.

The most important words in the original and omitted by the reissue, are inclosed in brackets in the original. The most important new matter in the reissue is shown therein in *italics*.

ORIGINAL.

To all whom it may concern:

Be it known that I, Henry H. Eby of Mendota, in the County of LaSalle and State of Illinois, have invented a new and useful Corn Cob Carrier; and I do hereby declare that the following is a full and exact description of the same, reference being had to the accompanying drawing and to the letters of reference marked thereon.

This invention is designed for use in connection with a power corn sheller, for the purpose of carrying away the cobs from the machine;

and consists mainly in the combination of suitable devices for actuating the carrier, (with means for adjusting the carrier) to cause it to discharge the cobs in any desired direction, as will be fully described hereinafter.

REISSUE.

To all whom it may concern:

Be it known that I, Henry H. Eby, of Mendota, in the county of LaSalle and State of Illinois, have invented an improvement in Cob Carriers for Corn-Shellers, of which the following is a specification:

The object of my invention is the production of a cob-carrier for power corn-shellers, to receive the cobs from the spout of the sheller and deliver them in any desired direction, *which is adapted to be adjusted both vertically and horizontally upon its supporting frame and driving mechanism without interfering with or stopping its operation;*

and my invention therein consists in mounting the carrying frame upon a revolving block at its inner end and upon adjustable legs at the outer end, and driving the endless belt by cog gearing applied at the inner end thereof; and, further, in a combination, with such parts of the central vertical shaft and its connections for transmitting power from a pulley to the inner end of the endless belt, all as fully hereinafter described, for effecting the purpose before explained.

In the drawing, Figures 1 and 2, views in elevation of my invention; Fig. 3, a partial plan view of the same; and Fig. 4, a view of the bolts for securing the block.

To enable others skilled in the art to make and use my invention, I will now proceed to describe fully its construction and mann r of operation.

a a a represent a suitable framework for supporting the operating parts of the machine. [*b* represents a disk or block, resting upon proper bearings upon the framework *a*, provided with a central orifice, through which passes a shaft *b'*, provided at its lower end with a pulley, b", and at its upper end with a bevel gear wheel, *b'"*, as shown.]

c represents a pinion attached to the inner end of a short hori-

To enable others skilled in the art to manufacture and use my invention, I proceed to describe the same, having reference to the drawings, in which—

Figure 1 is a perspective view of the machine; Fig. 2, an end elevation looking in the direction of the arrow in Fig. 1, with a part of the supporting frame removed, and the pivoted supports broken away to show the operating mechanism; Fig. 3, a sectional view of a part of the operating mechanism; and Fig. 4, a view of one of the hook-bolts for *guiding* and holding the *revolving* block.

Like letters denote corresponding parts in each figure.

A represents a proper framework for supporting the operating parts of the machine, upon the cross-pieces *a a'* of which is mounted a disc or block, B. *This block may rest upon a plate or support, b, connecting the cross-pieces. a a'*, and is held in position and *guided* by any suitable number of hook bolts, *b*, secured in the frame and having their upper ends turned over the block, *which allow it to be revolved easily in either direction.* A vertical shaft, C, passes loosely through the plate *b*, and the center of the block B, and is provided on its lower end, below such plate, with a suitable pulley, C', around which a belt, *c*, passes for driving the operating mechanism. This shaft C projects above the block B, and a bevel-gear wheel, C", is keyed on its upper end.

D is a short horizontal shaft, which is supported on one side of

zontal shaft resting in proper bearings on the block *b*, the outer end of which is provided with a gear-wheel *c'*.

D represents the carrier frame, constructed generally in any proper manner, and provided with the endless belts *d d*, having suitable cross-slats, and the pivoted supports *d' d'*, which support the outer end. The inner end of the carrier-frame is pivoted to arms *e e* rising from the block *b*, as shown.

d" represents a gear-wheel attached to the shaft of the lower pulley of the endless belts of the carrier, which wheel engages with the gear-wheel *c'* as shown.

m m represent bolts secured in the frame-work, the upper ends of which are turned over the block *b*, as shown.

the movable block B in a standard, *d*. The inner end of this shaft has a bevel-gear wheel, D', which meshes with the bevel-gear C" on the vertical shaft C, and the outer end is provided with a spur-wheel, D".

E is the carrying spout or frame, of any proper form, having at its upper and lower ends the rollers E' E", around which the endless carrying-belts *e e* extend, provided with suitable cross-slats *e'*.

The inner or lower end of the carrier-frame is supported by arms F F', which rise from the block B to which they are rigidly secured, and are pivoted to hangers F" F"', attached to the sides of such carrying-frame.

The shaft of the roller E" is extended through one side of the carrying-frame, and a cog wheel, E"', is keyed thereon, which meshes with the cog-wheel D" on the horizontal shaft D.

The arms F F' are pivoted to the hangers F" F"' on the line of the shaft of the roller E" so that the outer end of the carrying-frame can be raised or lowered to any desired extent without throwing the cog-wheels D" and E"' out of gear, and without affecting in the least the operation of the endless belt.

To the sides of the carrying-frame, at any desired point, are pivoted the supporting legs G G', which support the outer or upper end of such carrying-frame. By means of these p voted supports the outer end of the carrying-frame is adapted to be raised or lowered and supported at any desired elevation.

The manner of using my invention will now be described. It being located in reference to the corn-sheller in such manner that the cobs from the latter can be discharged upon the carrier, power is communicated to it from the sheller by means of a belt which runs about the pulley *b'*. By this means motion is communicated, through the connections described, to the endless belt, which carries off the cob.

The carrier may be turned for the purpose of discharging the cobs in any desired direction [by revolving the block *b*, which supports the carrier-frame and the main portion of the actuating devices upon its bearings, it being secured in any desired position by means of the hook-bolts *e e*.]

The described construction has been found in practice to be well adapted for the purpose for which it is designed.

In operation, the carrying-frame is located with reference to the corn-sheller in such manner that the cobs can be discharged upon the lower end of the endless belt. Motion being communicated to the pulley C', the endless belt is operated through the gearing described, and the cobs moved to and thrown from the outer or upper end of the carrying-frame. The cobs are delivered into a wagon driven under the end of the carrier, or into any proper stationary or removable receptacle.

When desired to turn the carrying frame to either side, to deliver the cobs in any other direction or into other receptacles, *the outer end is moved bodily around, which moves the block B and the gearing, and the hook-bolts b' may then be tightened up to hold the parts more rigidly in their new position.*

By means of the devices for supporting the carrier and the gearing for driving the endless belt at the inner end of the carrying-frame, any extent of movement of such carrying-frame is permitted without stopping the operation of the endless belt, and this movement is effected with but little inconvenience and delay. The changing of the direction of the carrying frame, both vertically and horizontally could not be performed with as great facility if the endless belt were driven otherwise than at its inner end, where the least movement is made, or if the said carrying frame were supported by less efficient means than those described.

Having thus fully described my invention, which I claim as new, and desire to secure by letters patent, is—

1. [The combination of the block *b*, adapted to revolve as described, and the hook-bolts *e e*, for supporting a carrier, as described.]

2 [The combination of the block *b* and the central vertical shaft and its connections, substantially as described.]

3. [The combination of the frame-work *a a a*, block *b*, the central vertical shaft *b'*, pulley *b''*, gear-wheel *b'''*. horizontal shaft with pinion *c* and gear-wheel *c'*, carrier-frame D having belts *d d*, supports *d' d'*, gear-wheel *d''*, arms *e e* and bolts *m m*, arranged as and for the purpose described.]

Having thus described my invention *and explained some of its advantages*, what I claim as new, and desire to secu e by letters patent, is—

1. *A movable independent cob carrier wherein are combined a supporting and revolving block, a carrying frame whose inner end is supported upon said block, and whose outer end is supported upon movable legs, and gearing applied at the inner end of the carrying frame and capable of acting continuously, whether the carrying frame is fixed in position or being swung to a new position*, substantially as described.

2. *A movable independent cob-carrier wherein are combined a carrying-frame supported at its inner end upon a revolving block, and the central vertical shaft and its connections, whereby the said carrying frame can be adjusted vertically and horizontally without stopping the operation of the endless belt, substantially as and for the purposes set forth.*

Language cannot make more perspicuous the fact, that not only have the specifications and drawings been doctored to interpolate the "plate *b*" and convert block B into a *revolving* block, and to incorporate into the specifications the idea of changing the direction of the delivery spout without stopping the machine, but the claims are made generic, and enlarged to include any ideal struct-

ure having the capability of change of position while the machine is in operation. It is significant that while the parts are all lettered in the drawings and specifications, in the reissued claims not one of such parts is referred to by letter, or in any way, to indicate that the patentee was referring to the identical parts which he had lettered, and *every one of which he claimed as lettered* in his original claims. On the contrary, in the reissued patent the claims seek to include *every structure* having its spout supported generally as complainant's, and susceptible of lateral and vertical adjustment. The parts, even, which permit the functions mentioned in said claims, are not designated by letter as in the original, lest their absence in, or dissimilarity from, other structures should result in the latter falling outside the scope of restricted and specific claims.

The attitude of rival manufacturers at the time of the reissue, the testimony of the patentee, and the enlarged condition of the specification and claims of the reissue, all point to the fact of expansion of the reissue.

In the application for the reissue no specific error or mistake is alleged to have existed in the original patent. As stated in Dunham v. Dennison Mfg. Co., 154 U. S., 103. "The words were neither technical or complicated, and their meaning and scope could not have been misunderstood by any one who read them with the slightest attention, least of all by the patentee." Then the interrogatory is most pertinent, why apply for a reissue? The only answer can be, to broaden the claims.

It is worthy of notice, that it is not essential to the invalidity of the reissue, that the reissued claims be *in fact* broader than those of the original patent. If the reissued claims are *different* from the original ones, and no such mistake, error or inadvertance appears which the law required as pre-requisite to a reissue, and the *intent* in applying for the reissue was to broaden the claims, such re-issued claims are void, because there was no authority, under such circumstances, in the commissioner to grant *any* reissue. The case is as though a patent had been issued without law. The law is not so benignant as to permit a person to do all he can in the accomplishment of an illegal purpose, and then escape the consequences, by afterwards alleging that he did not succeed to the full measure of his intent. Such, in substance, is one of the positions of Judge Thayer in Huber *et al* v. N. O. Nelson Mfg. Co., 38 Fed. Rep. 830. Affirmed and approved in 148 U. S. 270.

The mere reading of the re-issued claims will force the conviction that they are a broadening of the original claims. Corroborative of this it will be seen, that as a platform upon which the claims were to be broadened in the re-issue, new matter was inserted in the re-issued specification which was not contained in the original one. One very significant innovation is the prominent appearance for the first time in the re-issued patent, of the susceptibility of the carrier to be changed in direction *without stopping the operation of the carrying belt or of the machine*. This function is not even mentioned in the original patent, but there, the lateral

rotation of the block *b* could be accomplished only by releasing its restraining hook-bolts as aforesaid. And no doubt the appearance for the first time in the re-issue of the cross plate *b* under the former block *b* was one step in the process by which a machine, in which the carrier formerly could be shifted only by certain manipulations of the hook-bolts, would be transmuted into a machine in which such carrier could be shifted without the said preparatory steps. This function of changing during the operation of the machine, which is incorporated for the first time in fact, and in statement, in the re-issued patent, *is the main function named in both of the re-issued claims.*

All of these changes must have been for a purpose, and when the process of re-issue consummates in generic claims, it is plain that all of the previous changes were but a scaffolding upon which to rest the broadened claims. In addition to the foregoing, we have the testimony of the inventor himself, why the re-issue was had, in the following words (page 22):

X. Q. 1. Did you grant any licenses, or receive any royalties under the original letters patent on which these re-issued letters patent are based?

A. I did not.

X. Q. 2. Were any of those parties who are now manufacturing under license from you making cob stackers similar to those they are now making, and paying you for the privilege of so doing, before you obtained your said re-issued letters patent?

A. None but the Joliet Manufacturing Co.

X. Q. 3. Did you apply to them to pay you a royalty for the privilege?

A. They asked me for the privilege before they made any, and I told them to go ahead, as it would be an advertisement for my patent, and they could pay me what we would agree upon.

X. Q. 4. Do you know whether there were any other parties manufacturing cob carriers similar to the one for which you obtained a patent, before you obtained a re-issue of letters patent?

A. The Joliet Manufacturing Company were manufacturing a cob stacker in most respects the same as the machine described by Mr. James Lucas as bought of King, Hamilton & Co., the running gear being the same. After I obtained my re-issued letters patent they bought the shop right which I have mentioned. The Marseilles Manufacturing Company were manufacturing a cob carrier something like complainant's model (exhibit "Eby"), except that the horizontal cog wheel was placed below the revolving block, and was large enough to mesh with the cog wheel at the lower end of the carrying shaft, thus dispensing with the horizontal shaft and its two cog wheels. After I obtained my re-issue they took a license from me to make said machine upon royalty.

X. Q. 5. Did you apply to them to pay you royalty before you obtained your re-issue?

A. I asked them whether they didn't think they ought to pay me royalty. The answer, I believe, was my letters patent were not broad enough, or words to that effect, to require them to pay royalty.

X. Q. 6. Were there any other parties of whom you asked a royalty under your patent, previous to the re-issue?

A. I applied to the Sandwich Manufacturing Company.

X. Q. 7. What was their answer to your application?

A. They said they did not think they were infringing on my patent.

X. Q. 8. Have they paid you a royalty since the re-issue?

A. They have paid me a royalty and obtained a shop right from me since the re-issue, but none before.

RE-DIRECT.

Q. 1. Do you wish to make any explanation to your answer to X. Q. 2? If so you can now make it.

A. I do. I did not quite understand the question; I meant to say that none but the Joliet Manufacturing Company were making a cob stacker like complainant's model (exhibit "King, Hamilton & Co's device").

It therefore appears from the complainant's testimony that at least two companies declined to pay royalty under his original patent, for the reason that the same was not broad enough, or it did not cover their construction, and that since the re-issue they have complied with his request to pay said royalty. The fact appears, then, that he

found the original too narrow, he reissued the same, and then applied to the same persons, evidently with the conviction that by his reissue he had broadened his claims, and thereby covered their machines. What he did do by his reissue is the best evidence of what he intended to do thereby—*i. e.* broaden the claims enough to cover existing structures.

As all of the claims in the old patent were left out in the new, and *entirely different claims* inserted in the new, or reissued patent, the purpose in applying for the reissue must have been to either broaden, or restrict the claims of the original patent. There is no suggestion that the original claims were considered by any one as being *too broad*. The evidence is all the other way—that they were *too narrow* for the patentee to obtain the payment of royalties from the manufacturers of certain machines. It is simply preposterous to assert that when the patentee discovered that his original claims were esteemed already too narrow, that he applied for a reissue *to still further narrow, or limit* them. Such a conclusion under the situation would be absurd. On the contrary, there can be nothing clearer than that, finding the claims of his original patent too narrow for his purposes, he applied for a reissue, incorporated new matter in the specification, and broadened the claims; that the parties who had previously considered the original claims too narrow, now agreed with him as to the increased breadth of the reissued claims and took licenses thereunder. The facts of the situation, the testimony of the claimant himself,

and the subject matter of the claims of the old and new patents, all point to the one conclusion, to-wit: that the claims of the reissued patent were intended to, and do cover structures which were not within the claims of the original patent.

In the answer (page 13 record) it is alleged as follows:

"And these defendants, further answering, on information and belief, aver that the alleged improvements claimed by complainant in said reissued letters patent are other and different from the alleged claim of said original patent, and are, and constitute other and different alleged inventions, and that all of the claims in said reissued letters patent have been intentionally widened and broadened, and thereby complainant has attempted to embrace therein, and secure thereby, more and different alleged inventions than was embraced or contained in said original patent, and that said reissued letters patent therefore are, and have been, issued without authority of law, and are invalid and void.

"And these defendants, farther answering, say that said original letters patent were granted on January 14, 1873, and that the application by complainant for said reissued letters patent was not made or filed in said patent office of the United States until March 20, 1877; and these defendants aver, on information and belief, that said complainant, by his laches in making such application for said reissued patent, and from the length of time intervening between the issue of said original let-

ters patent and the said application for said reissued letters patent, lost all right which he may have otherwise had to obtain such reissue, and that the said commissioner of patents, by reason of the aforesaid laches or lapse of time, and by reason of such broadened claims in said reissued letters patent, had no jurisdiction to receive or entertain said application for said reissue, and had no authority in law to grant or issue said reissued letters patent, and that the latter are therefore invalid and void."

And by stipulation on file, (page 14) the following is added to the answer:

"And defendants deny that said original letters patent were surrendered for due cause, in due form of law, to said commissioner of patents, as in and by said bill of complaint alleged.

"And they further deny that said commissioner issued or granted said reissued letters in conformity with the requirements of the statute in such cases made and provided; but, on the contrary, they aver that complainant's said original patent was at no time inoperative or invalid, by reason of the defect or insufficiency of the specification, or by reason of complainant, by inadvertency, accident or mistake, having claimed in his said original patent, as his own invention or discovery, more than he had a right to claim as new."

Also it is in evidence, by an affidavit of one of the defendants, on file, stipulated into the case as testimony, that defendants, since two years before the filing by complainant of his application for said

reissued patent, had been and have been making and selling the same type of machine as that for the making and selling which they have been sued in this case.

So the question is fairly presented, by pleading and proof, whether complainant, after four years from the issue of his original patent, could reissue and broaden the same to cover and interdict constructions used in the interim.

Referring to the law on this subject, we find this whole matter well examined, and many previous cases referred to, in the case of *Ives v. Sargent, 119 U. S.. 652.* The suit is on a reissued patent for an improvement in door bolts. In the syllabus is the following:

"It is the duty of a patentee receiving letters patent for an invention, to examine them within a reasonable time to ascertain whether they fully cover his invention. If he neglects so to do for the period of three years, and the real invention is then found to be infringed by a construction which is manufactured and sold without infringing the patent as originally granted, he must suffer the penalty of his own laches, and cannot by means of a reissue, correct the error."

As to the rule of diligence required, the court refer to and approve of *Wallensak & Reiher, 115 U. S., 96, 99,* and quote extensively to the effect that if at the date of the original patent, the patentee had been conscious of the nature and extent of his invention, an inspection of the patent, when issued

with reasonable care, such as is expected of a man stimulated by self-interest, would have informed him that the patent failed to cover the full area of his invention, and this amounts to notice.

The court also quotes *Maher v. Harwood, 112 U. S., 354:*

"If a patentee has not claimed as much as he is entitled to claim, he is bound to discover the fact in a reasonable time, or he loses all right to a reissue."

And the court, referring to both *Wallensak v. Reiher* and *Maher v. Harwood*, say:

"It is also well settled that, while no invariable rule can be laid down as to what is a reasonable time within which a patentee should seek for the correction of a claim which he considers too narrow, a delay of two years, by analogy to the law of public use before an application for a patent, should be construed equally favorable for the public and excuse for any longer delay than that should be made manifest by the peculiar circumstances of the case."

The court also proceed to compare the original and reissued patent, and decide that in the reissue the specification had been changed, and new matter added, and the claim broadened. Hence the reissue was void, both because it was not the same invention as the original and there was too much delay in applying for it.

In our case, as in that case, we find in the reissue new and different specification, new and different and broader claims, and we find a delay of over four years (instead of three) in applying for the reissue, and we find that the defendants and others had been manufacturing a construction in the meantime which was not covered by the original patent.

The case of *White* v. *Dunbar*, 119 U. S., 47, is a reissued patent dated June 23, 1876. The original was dated five years earlier. The original patent was for preserving shrimps by putting them in a bag of textile fabric and then sealing in a metallic can and boiling. That is, the original is for interposing between the can and its contents a *textile fabric*. The reissue is for interposing between the can and its contents an *enveloping material* (viz. a textile fabric or something else to accomplish the same purpose). Defendants used paper boiled in paraffine wax. The court held that the reissue is an enlargement of the original; that the claim is a statutory requirement prescribed for the very purpose of making the patentee define precisely what his invention is, and it is unjust to the public and an evasion of the law to construe it in a manner different from a plain import of its terms, and the court held that the *textile fabric* of the original claim does not mean any enveloping material, and the original patent cannot be construed so broadly, and the reissue is a material enlargment and expansion of it. Also that as there was a delay of five years after date of the original before the reissue was applied for, and its object was expansion,

it comes within *Miller* v. *Brass Co.*, 104 U. S., 350, and subsequent cases, and the reissue is invalid.

This case of *Miller* v. *Brass Co.*, 104 U. S., 350, which is frequently referred to, is a suit on reissued letters patent for improvement in lamps. The original was for a double dome without a chimney; the reissue for one dome with a chimney. The court held that the reissue was materially different from the original, and also that the delay in applying for it was too great, and fully examine the whole subject of reissues, and especially show that the rule of laches should be strictly applied where the reissue is gotten for the purpose of enlarging the scope of the patent.

The next case reported in the same volume of Reports is *James* v. *Campbell*, 104 U. S., 357, and is on a reissued patent for an improved post-office stamp for printing the post mark and cancelling the postage stamp at one blow. The reissue is declared invalid for about the same reasons as in *Miller* v. *Brass Co.* In the syllabus we find:

"If letters patent fully and clearly describe and claim a *specific* invention, complete in itself, so as not to be inoperative or invalid by reason of a defective or insufficient specification, a reissue cannot be had for the purpose of expanding or generalizing the claim in order to embrace an invention not specified in the original."

Burr v. *Duryea*, 1 Wall., 531.

Now in our case Eby's original specification describes his specific machine plainly and clearly so that any mechanic skilled in the art could readily make it. It must have been for the purpose of generalization that he got his reissue.

Warden v. *Searles*, 121 U. S., 14, involves a reissued patent for whip sockets. The court finds the reissue invalid, as an unlawful expansion of the original patent, and gotten to cover defendant's device.

Brown v. *Davis*, 116 U. S., 237, shows that broadening and a delay of eleven years invalidates reissue.

Eachus v. *Bromall*, 115 U. S., 429, shows a patent dated August 26, 1873; reissue dated March 2, 1875. The original described a machine for cutting paper boards; the reissue claimed process for cutting paper boards, which is an enlargement made purposely and falls under terms of *Powder Co.* v. *Powder Works*, 98 U. S., 126.

McMurray v. *Mallory*, 111 U. S., 97, holds that where the claims in the reissue would include devices not covered by the original patent the claims are void, and refers to many prior decisions.

Turner & Seymour Co. v. Dover Co., 111 U. S., 319, lays down the same doctrine. It involves a reissue for egg beaters. The court show that the reissue is broader than the original, and that the attempt on the part of the appellees to construe the original claims so broadly as to make them as

broad as the reissue is of no avail, and the case comes within the principle of *Miller v. Brass Co.*, and also the following case:

Clements v. Odorless Apparatus Co., 109 U. S. 641., involves a reissue applied for four years and six months after the date of the original patent, and shows that defendants' device does not infringe the original patent, and if the reissue is construed to be broad enough to cover defendants' device, it is broader than the original and invalid; but even if he might have broadened it in apt time, the delay, without sufficient excuse, is fatal to the reissue.

To the same effect is *Moffit v. Rogers, 106 U. S., 423*, which holds, in substance, that any claim of a reissue which would make that an infringement which would not be an infringement of the original patent, is an enlargement which would make the reissue void.

So, likewise, *Mathews v. Machine Co., 105 U. S., 54.* The original claim was for a combination. There was delay of about six years before getting the reissue, and it was for a combination of a less number of elements. The court say: "No one could infringe the original patent unless he used all the elements of the combination; any one would infringe the reissue who would use any of the elements." Hence the reissue is broader than the original and void.

Bantz v. Grantz. 105 U. S., 160. Held that broadening the claims and delay are fatal to reissues. So also *Johnson v. R. R. Co. 105 U. S., 539.*

Maher v. Harwood, 112 U. S., 354. Reissued patent for ball covers. The original was dated May 21, 1872; reissue dated April 11, 1876—a delay of less than four years. The court say: "A patent cannot be lawfully reissued for the mere purpose of enlarging the claim, unless there has been a clear mistake inadvertently committed, and the application for a reissue is made within a reasonably short time," and that by analogy, a delay of more than two years would require special circumstances for its excuse.

Torrent Co. v. Rogers, 112 U. S., 659, holds reissue void as enlargement of original and not applied for till after nearly five years' delay.

Manufacturing Co. v. Ladd, 102 U. S., 408, involves reissue of patent on turbine water wheels, and holds that it was never intended, in allowing a patent to be reissued, to allow it to be enlarged, but only to be corrected where an error has been made, or to be restricted where the original claim was too broad. A specific wheel, &c., was fully and sufficiently described in the original, but the reissue is a generalization, and as such is invalid.

Among the later cases is that of *Cornell v. Weidner, 127 U. S., 261,* where it is held that the original patent for an improvement in metallic bushing for bungs of casks was distinctly limited to a bushing having a notch added to force it into place. A reissue, after seven years, for a bushing without such notching, is an unwarranted enlargement of the supposed invention, and renders the reissue void, as being for a different invention.

Citing *Yale Lock Manufacturing Co.* v. *James*, 125 U. S., 447, and cases there cited.

Also *Flower et al* v. *Detroit*, 127 U. S., 563, where the same doctrine is reiterated, and the reissued patent declared invalid, as matter of law, upon comparison of the original with the reissue.

Also *Farmers' Friend Manufacturing Co.* v. *Challenge Corn Planter Co.*, 128 U. S., 506, and 45 O. G., 1570, an appeal from the Circuit Court for the Western District of Michigan, wherein the decision of the late Judge Baxter was confirmed. This last case is very much like the case at bar, in that the reissued claims are of the *same generic character* as those of the patent in suit.

Also *Pattee Plow Co.* v. *Kingman et al*, 129 U. S., 701, holding the same doctrine, and that the specifications cannot be substantially changed, either by the addition of new matter, or the omission of important parts.

Indeed, in view of section 53, of the Patent act of 1870, which was the law in force when the original patent was granted, and section 4916, of the Revised Statutes, of June, 1874, in force at the date of the application for, and allowance of, the reissue, in both of which sections the following expressive language is used, "but no new matter shall be introduced into the specification," it is difficult to see how any reissued patent within which there is incorporated in both drawings and specifications new matter, can be considered as anything else but invalid.

Attention has been called to the fact that the file wrapper and contents of the application for the reissue, in evidence in this case, fails to disclose any statement of wherein the original patent was inoperative or invalid, or what the error was which was sought to be corrected, nor what was the special inadvertence, accident or mistake which had occasioned such error.

It is believed that, the Commissioner of Patents in such case acting upon a special jurisdiction to be exercised only on the pre-existence of certain facts, the existence of such jurisdictional facts and their character should appear upon the record. This doctrine has been held in the case of courts exercising extraordinary or special jurisdiction. And greater reasons existed for the application of the same doctrine to persons not courts, but exercising quasi judicial functions. "In summary proceedings, where a court exercises an extraordinary power under a special statute which prescribes its course, that course ought to be strictly pursued, and *the facts which give jurirdiction should appear on the face of the record; otherwise the proceedings are absolutely void.*"

Thatcher v. *Powell*, 6 Wheat, 119.

In *Newton* v. *Furst & Bradley Mfg. Co.*, 119 U. S. 373, one ground of holding the reissue void was, that "no mistake or inadvertence is shown."

"*Where it appears, on a comparison of the two instruments, as a matter of law,* that the reissued patent is not for the same invention as that em-

braced and secured in the original patent, the reissued patent is invalid, *as the Commissioner in granting a new patent exceeded his jurisdiction.*"

Parker & Whipple v. *Yale Clock Co.*, 123 U. S., 87.

"*Where it is apparent on the face of the patent, or by contemporary records*, that no such inadvertency, accident or mistake as claimed in the reissued patent, could have occurred, an expansion of the claim cannot be allowed or sustained."

James v. *Campbell*, 104 U. S., 356.

"The question of identity of the invention in original and reissued patents is to be determined from their face by mere comparison, if extrinsic evidedce is not needed to explain them, *and is matter of law for the court.*"

Heald v. *Rice*, 104 U. S., 737.

"*The action of the Patent Office* in granting a reissue, and deciding that the applicant had not been guilty of laches, is not sufficient to explain a delay in the application, which otherwise constitutes laches."

Hoskin v. *Fisher*, 125 U. S., 217.

NO NEW MATTER, OR MATTER NOT INCLUDED IN THE ORIGINAL SPECIFICATION, CAN BE INTRODUCED INTO THE SPECIFICATION OF THE REISSUE.

It will be admitted that there is no reference, in the *specification* or *claim* of the original patent, to this plate *b* interpolated in the reissue, but it will be contended that such plate appeared in the

original drawing and in the model. Inasmuch as the *specification* is presumed to state the extent and character of the alleged invention, it is the doctrine of this court that any invention to be proper subject of a reissue must be the same as that *which appeared in the specification of the original.* This position seems to be the logical sequence of the limitation on reissues, contained in Section 4916 of the Revised Statute as follows, "but no new matter shall be introduced into the *specification.*"

In *Topliff* v. *Topliff*, 145 U. S., 170, one of the conditions precedent to a valid reissue is stated to be "First, that it shall be for the same invention as the original patent, *as such invention appears from the specification* and *claims* of the original."

Prior to this decision, this court had held in *James* v. *Campbell*, 104 U. S., 356, "the law does not allow them (patentees) to make a reissue for anything but the same invention *described* and *claimed* in the original patent."

To the same effect is

Gage v. *Herring*, 107 U. S., 640.

Clements v. *Odorless Excavating Apparatus Co.*, 109 U. S., 641.

Mahn v. *Harwood*, 112 U. S., 534.

Following *Topliff* v. *Topliff* is the case of *Freeman* v. *Asmus*, 145 U. S. 241, in which the reissue was applied for within a year of the granting of the original patent. The reissue was held invalid by the insertion of new matter *in the specifica-*

tion and the expansion of the claim. This last case is very analagous to the case at bar (except that the application for the reissue here was filed more than two years after the issuance of the original patent.) In the case last cited, a synopsis of prior cases is given and very full citations on this point. The court says, "There is nothing in the original *specification* which indicates that any such *claim* was intended to be made in the original patent.

In the subsequent case of *Henry Huber et al* v. *N. O. Nelson Mfg. Co.*, 148 U. S., 270, the application for the reissue was filed within a year and a day of the date of the original patent. It is therein held that a patent cannot be reissued to enlarge the claims unless there has been a clear mistake inadvertently committed *in the wording of the original claim*, and further that where all the evidence that was before the Commissioner of Patents tending to show inadvertence or mistake was before the Circuit Court, that court can review the finding of the commissioner on the point that the original patent was inoperative by reason of inadvertence and mistake, at least to the extent of determining whether as matter of law, what was alleged as a mistake was such a mistake as warranted a reissue; and further, that where an element in the combination claimed in the original patent is omitted in the reissued claim, the latter is for a different combination and void.

In this case it also was sought to leave out of the claims of the reissue, "a flushing chamber" which had been one of the material elements of the original claim, as it is here sought to leave out the "hook bolts." It was held that could not be done.

See also *Wollensak* v. *Sargent*, 151 U. S., 221, where this Court says, "In *Ives* v. *Sargent*, 119 U. S., 652, 661, 662; *Wallensak* v. *Reiher*, 115 U. S., 96, and *Mahn* v. *Harwood*, 112 U. S., are cited with approval, and it is declared to be settled, that while no invariable rule can be laid down as to what is a reasonable time within which the patentee should seek for the correction of a claim which he considers too narrow, a delay of two years, by analogy to the law of public use, before an application for a patent should be construed equally favorably to the public. Andthat excuse for any further delay than that should be made manifest by the special circumstances of the case."

In *Dunham* v. *Dennison Mfg. Co.*, decided May 26, 1894, reported in 154 U. S., 103, where the specification and claims were enlarged (as in this case) to embrace the defendant's structure, the reissue was held invalid. This court stated "the words of the description in the original patent were neither technical nor complicated; but they were of the simplest kind, and their meaning and scope could not have been misunderstood by any one who read them with the slightest attention, least of all by the patentee. To uphold such a reissue under such circumstances, would be to grant a new and distinct privilege to the patentee at the expense of innocent parties and would be inconsistent with the whole course of recent decisions in this Court," citing among other cases

Leggett v. *Standard Oil Co.*, 149 U. S., 287.

Corbin Co. v. *Eagle Co.*, 150 U. S. 38.

In the later case of *Olin et al* v. *Timken*, 69 O. G., 1361 decided Nov. 19, 1894, a reissue was held invalid because of the introduction therein of matter not in the original and where it is held "where the original patent made no reference to an alternative construction of the device wherein one of the elements might be omitted, while the reissue merely retains the said element 'preferably,' as another form of the device. Held, that the effect of the insertion of the word 'preferably, was to render this element non-essential and unduly to expand the original," citing *Huber* v. *Nelson Mfg. Co.*, 148 U. S., 270.

These authorities, in strict conformity with the statute authorizing reissues, (Sec. 4916) require as conditions precedent to a valid reissue; first, that the original patent shall have been "inoperative or invalid by reason of a defective or insufficient specification, or by reason of the patentee claiming as his own invention or discovery more than he had a right to claim as new," and that such error shall have arisen "by inadvertence, accident or mistake;" second, as stated in *Topliff* v. *Topliff*, *supra*, that the reissue "shall be for the same invention as the original patent, as such invention appears from the *specification* and *claims* of the *original*."

As to the pre-requisite named of invalidity of, or error in the original patent, the bill of complaint herein is barren of even averments, save the ambiguous statement—that said original patent was "for due cause surrendered to the Commissioner of Patents in due form of law," (page 2) and said reissue made "in conformity with the requirements of the statute."

This averment is traversed in terms by the amendment to appellee's answer (page 14), replication filed, and the matter thus put in issue, yet appellant, who was twice on the stand as a witness, nowhere even suggests that his original patent was "inoperative or invalid," or that he had claimed therein "more than he had a right to claim as new." If it were necessary to allege a right to a reissue of said original patent, as part of his present title, it must be equally essential to prove the allegation, and in the absence of such proof, when an issue has been formed on the averment, the allegation that said original was surrendered "for due cause &c" must be considered as not established, with the fatal result that title of appellant fails to the invention claimed in such reissue.

It is true appellant's expert (page 54) asserts that the phrase "hook bolts *e e*" in old claim one, should be "arms *e e*." But he has no grounds for such assertion. There is no such suggestion from appellant, who certainly ought to know what he was talking about. These hook bolts are designated in the specification preceding the claims, both by *m* and *e* (pages 112 and 113), the arms are also designated as *e*. It is simply a double use of the same designating letter, but in every instance the coincident use of "hook bolts," the well known *name* of the device, precludes any uncertainty as to what is meant. But even if it were clear that the use of the letters *e e* in claim one was an error, they can be rejected as surplusage and the correct words "hook bolts" remain as a sufficient identification of the part referred to. Where one of two cumulative

descriptions is erroneous, it may be rejected and the correct one stand.

Kruse v. *Wilson*, 79 Ill., 233.

But I am unaware of any authority for changing so important a feature as the description in a grant, by *inserting* words or calls not contained therein in lieu of those used by the parties to the instrument, as is sought to be done by this witness. Claim 1 then, was for the combination of the flat round block, and the hook bolts which guided it while being turned and held it rigidly in the interval between turns. This, appellant says (page 39) he thought at first to be essential. It was a valid combination, for aught that appears to the contrary, though very limited. Even this expert witness finds no error in the second and third original claims, so that evidence of the existence of the first prerequisite to a right to a reissue; to-wit, an inoperative or invalid claim &c., is wholly wanting. Equally fatal to this reissue is the test of the other condition precedent; viz., that the subject matter of the new claims "shall be for the same invention as the original patent, as such invention appears from the specification and claims of the original patent." The inflation of the body of the reissue specification has been already fully pointed out. The history, purpose and process of elimination and infiltration has been given. A comparison of the claims of the original and reissue is all that is requisite for the speedy determination of the question whether the invention claimed in the reissue "appears from the specification and claims of the original." A very cursory examination of this

record will therefore detect the absence of any statutory basis for this reissue.

As to any intrinsic merit in appellant's present contention, aside from its legal status, it may be said he was a mere improver in the same field with the appellees and others. Each was entitled to his own special means or devices for reaching the common result.

McCormick v. *Talcott*, 20 How., 405.

Railway Co. v. *Sayles*, 97 U. S., 556.

It was the *means* alone which were patentable in any case. *Burr* v. *Duryea*, 1 Wall., 531, *Fuller* v. *Yentzer*, 94 U. S., 288; *Knapp* v. *Morss*, 150 U. S., 229. The appellees' mode was the simplest. It involved less parts. Perhaps neither set of devices was patentable in view of this and cognate arts. Anyhow a patent which either would be entitled to obtain, would be so limited as not to cover the other's combination of devices., Appellant however, was not content to retain the limited patent granted him after he discovered that it did not make the others tributary to him, and over four years after his acceptance of his original patent, applies for broader claims. First, he wants a claim on the belt, one on the carrier and its pivoted legs, one on the revolving block and the legs, &c. (page 116) After a six month's varied experience with the patent office (pages 116 to 123) he emerges with his present generic claims, and all of his competitors, except appellees, under the duress of such reissue, either purchase shop rights or pay him royalty, presumably during the residue of the term

of his patent. Even the appellees made him a moderate offer (page 24) which he would not accept and hence this suit.

* * * * * *

Since writing the foregoing, I have been favored with a copy of appellant's brief. Waiving for the present all reference to the legal propositions advanced therein, I wish to call attention to the fact, that the heart and center of appellant's position consists in reading the first claim of the original patent so as to make the same speak a language entirely different from that employed therein.

To him, success in this endeavor is of the utmost importance. Upon the claim thus perverted or changed, he predicates two propositions, neither of which can have any support in the actual language and meaning of the claim as made by the patentee, granted by the patent office, and printed in the patent.

His first proposition based upon the re-vamped claim, is that it is thus broad enough to have included appellee's machine. His second proposition is that, as thus re-stated, said original claim is broader than either of the two reissue claims. His third proposition, based on the same assumption, is that the alleged error in said first claim was the ground and justification for a reissue of said patent.

Therefore, whether appellant shall be permitted to change the phraseology of said first original claim is of vital importance to him, for without such change it is virtually conceded that appellee's

was not an infringement thereof, and further, that without such change, said original first claim was so narrow as that the reissue must be admitted to have been an extension and broadening thereof.

The importance which appellant attaches to this alleged error in, and attempted change of said first claim, is my excuse for again calling special attention to this portion of the case.

The original claim is as follows:

"1. The combination of the block *b*, adapted to revolve as described, and the hook bolts *e e*, for supporting a carrier as described."

It will be noticed that this is a claim of the combination of two elements, to-wit; block *b* and hook bolts *e e*. The block *b* was a thick, circular, wooden piece lying flat upon the frame work, and the hook bolts, having their shanks secured in said frame, were placed vertically, with their upper ends turned or hooked over the upper edge of the block *b*, to secure the latter in any desired position. The appellant testifies (Printed Record P. 39), "In the first original machine there were two hook bolts on opposite sides of the revolving block, one on each side. The purpose of these hook bolts was to keep the block from turning when the machine was in operation." This is identical with the purpose mentioned in the specification of "being secured in any desired position by means of the hook bolts *e e*."

The question here is not whether the hook bolts were necessary or not, (a point which the

expert and counsel for appellant seem to desire to discuss) but the single inquiry here is whether appellant intentionally used the word hook bolts in said first claim, for if he did, it is not material whether he was compelled to do so by the necessities of the case. As stated by Judge Blodgett in *Toepper* v. *Goetz et al*, 41 O. G., 933, "It is wholly irrelevant to inquire whether the patentee was obliged to limit himself by the ruling of the patent office. It is enough to say that he did so limit himself."

I shall of course contend, supported by authority, that under the law for construing written or printed instruments, if the appellant did in fact commit an error in this behalf, that the original claim so long as it was in force must be read and construed *as written*, but what I am placing special stress upon at this time is, that as *a matter of fact* the original claim 1 reads precisely as the appellant drew it, and as he intended to have it read. At that time, he deemed the hook bolts essential to secure his movable block *b* in any desired position. He so states that fact in his specification just preceding the claims. Neither in his application for reissue, (the entire record of which is in evidence, pages 113—124) nor in his personal testimony (Ps. 21, 37) does he suggest that he made any such mistake as his expert witness thinks he has discovered. On the contrary, on page 39, as afore stated, appellant testifies that said hook bolts were originally considered essential to keep said block from turning. The only pretense of appellant's expert for supposing any error in said original first

claim as printed, is that the letters *e, e,* are used to designate the hook bolts, while on the drawings said designating letters are used in connection with the arms or standards which extend from said block *b* to the foot of the carrier, and that the phrase "for supporting the carrier" is used in said first claim.

Disposing of the two supposed grounds for this attempted change, I would say first that the hook bolts are designated by the letters *e e* in the specification preceding the claims, and that in the then belief of the patentee that said block *b* would not be operative without said hook bolts, it was a logical sequence that said hook bolts would be included in a combination with said block *b.*

The phrase "for supporting the carrier" appellant's expert restricts to arms *e e.* But it is obvious that that phrase as used in said claim, must include the block *b* as it is the most important factor in supporting the carrier. Then as said phrase "for supporting the carrier" is just as applicable to a combination consisting of the block *b* and means for holding the latter, as it is to a combination of the block *b* and devices supported by the latter, said phrase "for supporting a carrier" can in no degree influence a conclusion for or against the probability of any error.

Then as to the probability of there being an error in fact committed, I say first, that the absence of any suggestion even of that nature on the part of the appellant who was the only one to know the

fact, in either his testimony or his application for the reissue is very strong persuasive evidence that no such error was committed.

Second. That affrmative testimony of the appellant that, at the time of said application, he deemed said hook bolts essential to the operation and use of said block *b*, and that he so states it in the specification is substantially conclusive evidence that the combination of those elements as they appear in said flrst claim was intended to be made.

Third. Inasmuch as there is no averment or allegation in the bill of complaint herein of any such supposed error, the conjecture in that behalf of both the expert witness and the counsel for appellant is wholly irrelevant. It would not be permissible to prove such supposed error in the absence of an *averment* that such error had occurred, even were the attempt made with a witness who had personal knowledge of the matter; *a fortiori* is the conjecture of a witness, having no personal knowledge of the matter, inadmissible.

The function of an expert witness in this class of cases is to explain the organization and operation of the machines in question and the meaning of technical terms from the standpoint of a mechanic, and then only when such organization or operation is so unique, obscure or complicated as to be difficult of comprehension to persons unfamiliar with mechanical intricacies. The construction of written instruments is always for the Courts. "Experts could not be examined as to the construction of the patent. They may be examined as to

the meaning of the terms of the art, not as to the construction of written instruments." *Corning v Burden, 15 Howard, 252.*

"It is a mistake to suppose that even on the question of science opinion can be dignified with a mantle of authority; still less when it assumes contested facts, or volunteers to aid in determining written instruments." *French v Rogers, 1 Fisher, 150.*

A Judge may obtain information from them if he desire, on matters which he does not clearly comprehend, but cannot be compelled to receive their opinions as matters of evidence." *Winans v The N. Y. & Erie R. R. Co., 21 Howard, 88.*

"When the words of any written instrument are free from any ambiguity in themselves, and when external circumstances do not create any doubt or difficulty as to the proper application of those words * * * to the subject matter to which the instrument relates, such instrument is always to be construed according to the strict, plain, and common meaning of the words themselves, and evidence *de hors* the instrument, for the purpose of explaining it according to the surmise or alleged intention of the parties is utterly inadmissible." *Tindal, C. J., in Shore v Wilson, 9 Clark & Finnelly, 565, 566.* Cited and approved in Addison on the Law of Contracts, 9 Ed. 45.

"The Court cannot import words into a contract which would make it materially different, in a vital particular from what it is." *Gavizel v Crump, 22 Wall, 308.*

"Implication is but another term for meaning and intention apparent in the writing, on judicial inspection." *Rhode Island v Mass., 12 Peters, 657.*

"Courts cannot depart from or cure defects of language in a patent." *Robinson on Patents, Sec. 737* and cases cited.

"Courts cannot depart from the letter of the instrument either by excluding present terms or by interpolating others." *ibid.*

"Undoubtedly a patent like any other written instrument is to be interpreted by its own terms." *Goodyear Dental Vulcanite Co. v Davis, 102 U. S., 222.*

"Where the description and claims disagree the claims control."

McKesson v. *Cardwick*, 21 O. G., 137; 19 Blatchford, 158; 9 Fed. Rep., 44.

Reading then the words of original claim 1 it is obvious that, being a claim for the combination of a block adapted to revolve in a horizontal plane and of hook bolts adapted to retain said block in any predetermined position, it is of very narrow scope, and it is equally obvious that the construction of appellee is not within said claim.

Original claim 2 is also extremely narrow because the "connections" to the "central vertical shaft." named in said second claim as the third element thereof, must necessarily include the short horizontal shaft carried on said block *b*, which horizontal shaft and the belt at the bottom are the *only connections* to said central vertical shaft.

The original third claim, which, as a combination of some twelve co-operating elements, could not be infringed without the use of all of the latter or their equivalents, is equally narrow.

Robinson on Patents, Sec. 922, and cases cited. 28 Fed. Rep., 850.

Fuller v. *Yentzer*, 4 Otto, 288.

On pages 84—88 inclusive, of the printed record, the expert witness for appellee has given an explanation of the construction and operation of the several machines older than appellant's, and on pages 12 and 13 of this argument I have sought to institute a comparison between said original claims and the defendant's machine, and would respectfully refer the Court to the above pages for fuller discussion of said matters.

The extremely limited scope of said original claims by reason both of their language and of the prior art, is important not only as compelling the exclusion therefrom of other means for accomplishing the same results, but the restricted character of said original claims is also important as being the incentive of the appellant in seeking said reissue, and by throwing into stronger light, through contrast therewith, the generic and comprehensive quality of the claims of the reissued patent. The case of Farmer's friend Manufacturing Co. v Challenge Corn Planter Co., 128 U. S. 506, furnishes a very close analogy to the expanded scope of the reissued claims in this case. In fact the claims of the reissue in this case are so expanded as to be largely functional, *i. e.* for a result.